completely controlling for differences in neighborhood risk and demand. The first two studies reviewed below are good examples of the more recent literature. In these studies, the explanatory power of neighborhood race is reduced to the extent that the effects of neighborhood risk and demand are accounted for; thus, they do not support claims of racially induced mortgage redlining. However, as explained below, these studies cannot reach definitive conclusions about redlining because segregation in our inner cities makes it difficult to distinguish the impacts of geographic redlining from the effects of individual discrimination.

Additional studies related to redlining and the credit problems facing low-income and minority neighborhoods are also summarized. Particularly important are studies that focus on the ''thin'' mortgage markets in these neighborhoods and the implications of lenders not having enough information about the collateral and other characteristics of these neighborhoods. The low numbers of house sales and mortgages originated in low-income and minority neighborhoods result in individual lenders perceiving these neighborhoods to be more risky. It is argued that lenders do not have enough historical information to project the expected default performance of loans in low-income and minority neighborhoods, which increases their uncertainty about investing in these areas.

Holmes and Horvitz Study. First, Andrew Holmes and Paul Horvitz used 1988–1991 HMDA data to examine variations of conventional mortgage originations across census tracts in Houston. Their single-equation regression model included as explanatory variables the economic viability of the loan, characteristics of properties in and residents of the tract (*e.g.,* house value, income, age distribution and education level), measures of demand (*e.g.,* recent movers into the tract and change in owner-occupied units between 1980 and 1990), and measures of credit risk (defaults on government-insured loans and change in tract house values between 1980 and 1990). To test the existence of racial redlining, the model also included as explanatory variables the percentages of African American and Hispanic residents in the tract and the increase in the tract's minority percentage between 1980 and 1990. Most of the neighborhood risk and demand variables were significant determinants of the flow of conventional loans in Houston. The coefficients of the racial composition variables were insignificant, which led Holmes and Horvitz to conclude that allegations of redlining in the Houston market could not be supported.

Schill and Wachter Study. Michael Schill and Susan Wachter posit that the probability that a lender will accept a specific mortgage application depends on characteristics of the individual loan application [16] and characteristics of the neighborhood where the property collateralizing the loan is located. Schill and Wachter include neighborhood risk proxies that are likely to affect the future value of the properties,[17] and they include the percentage of the tract population comprised by African Americans and Hispanics in order to test for the existence of racial discrepancies in lending patterns across census tracts.

Testing their model for conventional mortgages in Philadelphia and Boston, Schill and Wachter found that the applicant race variables—whether the applicant was African American or Hispanic—showed significant negative effects on the probability that a loan would be accepted. Schill and Wachter stated that this finding does not provide evidence of individual race discrimination because applicant race is most likely serving as a proxy for credit risk variables omitted from their model (*e.g.,* credit history, wealth and liquid assets). In an initial analysis that excluded the neighborhood risk variables from the model, the percentage of the census tract that was African American also showed a significant and negative coefficient, a result that is consistent with redlining. However, when the neighborhood risk proxies were included in the model along with the individual loan variables, the percentage of the census tract that was African American becomes insignificant. Thus, similar to Holmes and Horvitz, Schill and Wachter stated that ''once the set of independent variables is expanded to include measures that act as proxies for neighborhood risk, the results do not reveal a pattern of redlining.'' [18]

Other Redlining Studies. To highlight the methodological problems of single-equation studies of mortgage redlining, Fred Phillips-Patrick and Clifford Rossi develop a simultaneous equation model of the demand and supply of mortgages, which they estimate for the Washington, DC metropolitan area.[19] Phillips-Patrick and Rossi find that the supply of mortgages is negatively associated with the racial composition of the neighborhood, which leads them to conclude that the results of single-equation models (such as the one estimated by Holmes and Horvitz) are not reliable indicators of redlining or its absence. However, Phillips-Patrick and Rossi note that even their simultaneous equations model does not provide definitive evidence of redlining because important underwriting variables (such as credit history), which are omitted from their model, may be correlated with neighborhood race.

A few studies of neighborhood redlining have attempted to control for the credit history of the borrower, which is the main omitted variable in the redlining studies reviewed so far. Samuel Myers, Jr. and Tsze Chan, who study mortgage rejections in the state of New Jersey in 1990, develop a proxy for bad credit based on the reasons that lenders give in their HMDA reports for denying a loan.[20] They find that 70 percent of the gap in rejection rates cannot be explained by differences in Black and white borrower characteristics, loan characteristics, neighborhoods or bad credit. Myers and Chan conclude that the unexplained Black-white gap in rejection rates is a result of discrimination. With respect to the racial composition of the census tract, they find that Blacks are more likely to be denied loans in racially integrated or predominately-white neighborhoods than in predominately-Black neighborhoods. They conclude that middle-class Blacks seeking to move out of the inner city would face problems of discrimination in the suburbs.[21]

Geoffrey Tootell has authored two papers on neighborhood redlining based on the mortgage rejection data from the Boston Fed study.[22] Tootell's studies are important because they include a direct measure of borrower credit history, as well as the other underwriting, borrower, and neighborhood characteristics that are included in the Boston Fed data base; thus, his work does not have the problem of omitted variables, at least to the same extent as previous redlining studies.[23] Tootell finds that lenders in the Boston area do not appear to be redlining neighborhoods based on the racial composition of the census tract or the average income in the tract. Consistent with the Boston Fed and Schill and Wachter studies,

[16] Individual loan characteristics include loan size (economies of scale cause lenders to prefer large loans to small loans) and all individual borrower variables included in the HMDA data (the applicant's income, sex, and race).

[17] Their neighborhood risk proxies include median income and house value (inverse indicators of risk), percent of households receiving welfare, median age of houses, homeownership rate (an inverse indicator), vacancy rate, and the rent-to-value ratio (an inverse indicator). A high rent-to-value ratio suggests lower expectations of capital gains on properties in the neighborhood.

[18] Schill and Wachter, page 271. Munnell, *et al.* reached similar conclusions in their study of Boston. The found that the race of the individual mattered, but that once individual characteristics were controlled, racial composition of the neighborhood was insignificant.

[19] Fred J. Phillips-Patrick and Clifford V. Rossi, ''Statistical Evidence of Mortgage Redlining? A Cautionary Tale'', The Journal of Real Estate Research, Volume 11, Number 1 (1996), pp.13–23.

[20] Samuel L. Myers, Jr. and Tsze Chan, ''Racial Discrimination in Housing Markets: Accounting for Credit Risk'', Social Science Quarterly, Volume 76, Number 3 (September 1995), pp. 543–561.

[21] For another study that uses HMDA data on reasons for denial to construct a proxy for bad credit, see Steven R. Holloway, ''Exploring the Neighborhood Contingency of Race Discrimination in Mortgage Lending in Columbus, Ohio'', Annals of the Association of American Geographers, 88(2), 1998, pp. 252–276. Holloway finds that mortgage denial rates are higher for black applicants (particularly those who are making large loan requests) in all-white neighborhoods than in minority neighborhoods, while the reverse is true for white applicants making small loan requests.

[22] See Geoffrey M. B. Tootell, ''Redlining in Boston: Do Mortgage Lenders Discriminate Against Neighborhoods?'', Quarterly Journal of Economics, 111, November, 1996, pp. 1049–1079; and ''Discrimination, Redlining, and Private Mortgage Insurance'', unpublished manuscript, October , 1995.

[23] Tootell notes that both omitted variables and the strong correlation between borrower race and neighborhood racial composition in segregated cities have made it difficult for previous studies to distinguish the impacts of geographic redlining from the effects of individual borrower discrimination. He can unravel these effects because he includes a direct measure of credit history and because over half of minority applicants in the Boston Fed data base applied for mortgages in predominately white areas.

Tootell finds that it is the race of the applicant that mostly affects the mortgage lending decision; the location of the applicant's property appears to be far less relevant. However, he does find that the decision to require private mortgage insurance depends on the racial composition of the neighborhood. Tootell suggests that, rather than redline themselves, mortgage lenders may rely on private mortgage insurers to screen applications from minority neighborhoods. Tootell also notes that this indirect form of redlining would increase the price paid by applicants from minority areas that are approved by private mortgage insurers.

In a 1999 paper, Stephen Ross and Geoffrey Tootell use the Boston Fed data base to take a closer at both lender redlining and the role of private mortgage insurance (PMI) in neighborhood lending.[24] They have two main findings. First, mortgage applications for properties in low-income neighborhoods are more likely to be denied if the applicant does not apply for PMI. Ross and Tootell conclude that their study provides the first direct evidence based on complete underwriting data that some mortgage applications may have been denied based on neighborhood characteristics that legally should not be considered in the underwriting process. Second, mortgage applicants are often forced to apply for PMI when the housing units are in low-income neighborhoods. Ross and Tootell conclude that lenders appear to be responding to CRA by favoring low-income tracts once PMI has been received, and this effect counteracts the high denial rates for applications without PMI in low-income tracts.

Studies of Information Externalities. A recent group of studies that focus on economies of scale in the collection of information about neighborhood characteristics has implications for the identification of underserved areas and understanding the problems of mortgage access in low-income and minority neighborhoods. William Lang and Leonard Nakamura argue that individual home sale transactions generate information which reduce lenders' uncertainty about property values, resulting in greater availability of mortgage financing.[25] Conversely, appraisals in neighborhoods where transactions occur infrequently will tend to be more imprecise, resulting in greater uncertainty to lenders regarding collateral quality, and more reluctance by them in approving mortgage loans in neighborhoods with thin markets. As a consequence, ''prejudicial practices of the past may lead to continued differentials in lending behavior.''

If low-income or minority tracts have experienced relatively few recent transactions, the resulting lack of information available to lenders will result in higher denial rates and more difficulty in obtaining mortgage financing, independently of the level of credit risk in these neighborhoods.

A number of empirical studies have found evidence consistent with the notion that mortgage credit is more difficult to obtain in areas with relatively few recent sales transactions. Some of these studies have also found that low transactions volume may contribute to disparities in the availability of mortgage credit by neighborhood income and minority composition.

Paul Calem found that, in low-minority tracts, higher mortgage loan approval rates were associated with recent sales transactions volume, consistent with the Lang and Nakamura hypothesis.[26] While this effect was not found in high-minority tracts, he concludes that ''informational returns to scale'' contribute to disparities in the availability of mortgage credit between low-minority and high-minority areas. Empirical research by David Ling and Susan Wachter finds that recent tract-level sales transaction volume does significantly contribute to mortgage loan acceptance rates in Dade County, Florida, also consistent with the Lang and Nakamura hypothesis.[27]

Robert Avery, Patricia Beeson, and Mark Sniderman find significant evidence of economies associated with the scale of operation of individual lenders in a neighborhood.[28] They conclude that ''The inability to exploit these economies of scale is found to explain a substantial portion of the higher denial rates observed in low-income and minority neighborhoods, where the markets are generally thin.'' Low-income and minority neighborhoods often suffer from low transactions volume, and low transactions volume represents a barrier to the availability of mortgage credit by making mortgage lenders more reluctant to approve and originate mortgage loans in these areas.

d. Geographic Dimensions of Underserved Areas—Targeted Versus Broad Approaches

HUD's definition of underserved areas is a targeted neighborhood definition, rather than a broad definition that would encompass entire cities. It also focuses on these neighborhoods experiencing the most severe credit problems rather than neighborhoods experiencing only moderate difficulty obtaining credit. During the regulatory process leading to the 1995 Rule, some argued that underserved areas under this goal should be defined to include the entire central city. HUD concluded that such broad definitions were not a good proxy for mortgage credit problems; to use them would allow the GSEs to focus on wealthier parts of cities rather than on neighborhoods experiencing credit problems. This section reports findings from several analyses by HUD and academic researchers that support defining underserved areas in terms of the minority and/or income characteristics of census tracts, rather than in terms of a broad definition such as all areas of all central cities.

Socioeconomic Characteristics. The targeted nature of HUD's definition can be seen from the data presented in Table B.3, which show that families living in underserved areas experience much more economic and social distress than families living in served areas. For example, the poverty rate in underserved census tracts is 20.1 percent, or almost four times the poverty rate (5.8 percent) in served census tracts. The unemployment rate and the high-school drop out rate are also higher in underserved areas. In addition, there are nearly three times more female-headed households in underserved areas (11.5 percent) than in served areas (4.3 percent)

The majority of units in served areas are owner-occupied while the majority of units in underserved areas are renter-occupied.

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[24] Stephen L. Ross and Geoffrey M. B. Tootell, ''Redlining, the Community Reinvestment Act, and Private Mortgage Insurance'', unpublished manuscript, March, 1999.

[25] Lang, William W. and Leonard I. Nakamura, ''A Model of Redlining,'' Journal of Urban Economics, Volume 33, 1993, pp. 223–234.

[26] Calem, Paul S. ''Mortgage Credit Availability in Low- and Moderate-Income Minority Neighborhoods: Are Information Externalities Critical?'' Journal of Real Estate Finance and Economics, Volume 13, 1996, pp. 71–89.

[27] Ling, David C. and Susan M. Wachter, ''Information Externalities and Home Mortgage Underwriting,'' Journal of Urban Economics, Volume 44, 1998, pp. 317–332.

[28] Robert B. Avery, Patricia E. Beeson, and Mark S. Sniderman, ''Neighborhood Information and Home Mortgage Lending,'' Journal of Urban Economics, Volume 45, 1999, pp. 287–310.

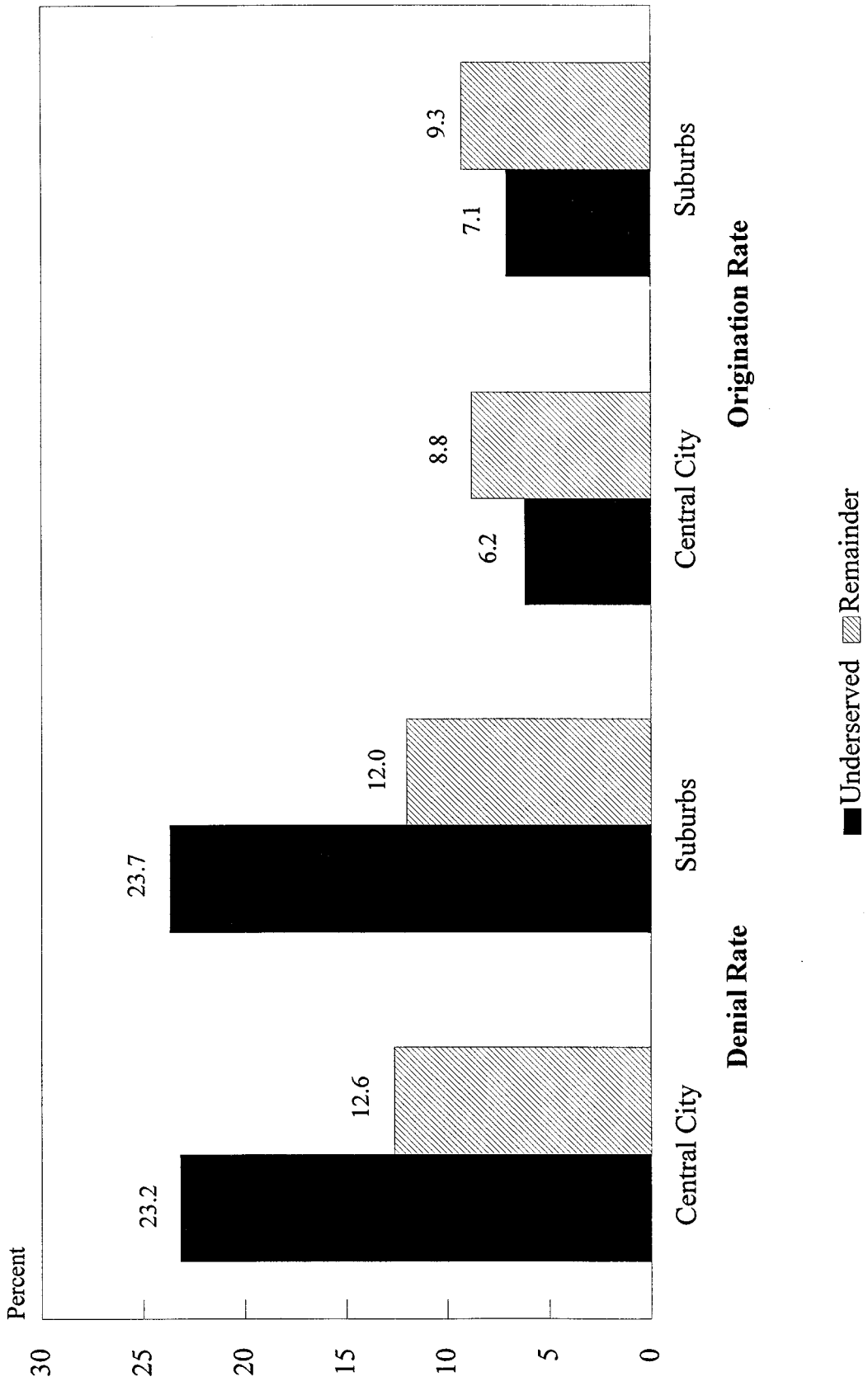
Table B.3

Socioeconomic Characteristics of Underserved Areas in Metropolitan Areas

	Served Tracts	Underserved Tracts	Total
Census Tracts	23,819	21,587	45,406
Households	41,379,104	31,839,636	73,218,740
Population	110,037,735	87,578,825	197,616,560
Unemployment Rate	4.2%	9.0%	6.2%
Poverty Rate	5.8%	20.1%	12.1%
Dropout Rate	10.3%	20.4%	14.8%
Percent Female Household With Children	12.1%	28.3%	19.7%
Percent African-American	3.8%	23.6%	12.6%
Percent Minority	11.1%	46.6%	26.8%
Percent Owner-Occupied	71.3%	47.6%	61.0%
Percent Renter	28.6%	52.4%	38.9%

Source: 1990 Census.

Figure B.1
1997 Denial And Origination Rates
Underserved Areas And Remainder
By Central Cities And Suburbs



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Credit Characteristics. Tables B.1 and B.2 documented the relatively high denial rates and low mortgage origination rates in underserved areas as defined by HUD. This section extends that analysis by comparing underserved and served areas within central cities and suburbs. Figure B.1 shows that HUD's definition targets central city neighborhoods that are experiencing problems obtaining mortgage credit. The 23.2 percent denial rate in these neighborhoods in 1997 is twice the 12.6 percent denial rate in the remaining areas of central cities. A broad, inclusive definition of ''central city'' that includes all areas of all OMB-designated central cities would include these ''remaining'' portions of cities. Figure B.1 shows that these areas, which account for approximately 43 percent of the population in OMB-designated central cities, appear to be well served by the mortgage market. As a whole, they are not experiencing problems obtaining mortgage credit. [29]

HUD's definition also targets underserved census tracts in the suburbs as well as in central cities—for example, the average denial rate in underserved suburban areas (23.7 percent) is more than twice that in the remaining served areas of the suburbs (12.0 percent). Low-income and high-minority suburban tracts appear to have credit problems similar to their central city counterparts. These suburban tracts, which account for 40 percent of the suburban population, are encompassed by the definition of other underserved areas.

Another alternative definition proposed by some in 1995 would have relaxed HUD's definition by increasing the income threshold from 90 percent to 100 percent of area median income and by reducing the minority threshold from 30 percent to 20 percent of tract population. This definition would include all areas covered by HUD's definition as well as 5,367 additional census tracts where median income is between 90 and 100 percent of area median or minorities comprise 20–30 percent of tract population. As HUD argued in the 1995 GSE Rule, these tracts do not appear to be experiencing problems obtaining mortgage credit. Their 17.8 percent mortgage denial rate is not much above the average of 15.3 percent and significantly below the 23.4 percent denial rate in tracts covered by HUD's Geographically Targeted Goal.

As explained in the Preamble, HUD is asking for public comment on two options that would tighten the targeting of the underserved definition reducing the number of qualifying census tract. The first option would enhance the definition of the tract income ratio and reduce the ceiling of the qualifying tract income ratio from 90 percent to 80 percent of area median income. The definition of tract income ratio would be enhanced as follows: the definition would change from tract median income as a percent of MSA median income to tract median income as a percent of the greater of either the national metropolitan median income or the MSA median income.

Applying the definition changes the current definition in two ways: (1) 994 tracts, with an average denial rate of 26.8, would be added, and (2) 2,500 tracts, with an average denial rate of 17.8 percent, would be dropped due to reducing the income threshold to 80 percent. Of the tracts that would be dropped, the denial rate is not much higher than the average denial rate for all metropolitan areas, which is 15.3 percent. This suggests that these areas are not experiencing severe problems in obtaining mortgage credit and should not be targeted.

The second option would change the definition of underserved areas to qualify census tracts with minority population of 50 percent, an increase from the current definition of 30 percent. An increase in the tract minority population would focus GSE purchases in high-minority neighborhoods that have been traditionally underserved by the mortgage market. One shortcoming of this option is that it would exclude 1,045 tracts with minority population between 30 and 50 percent which have high denial rates (20.2 percent).

Shear, Berkovec, Dougherty, and Nothaft Study. William Shear, James Berkovec, Ann Dougherty, and Frank Nothaft conducted an analysis of mortgage flows and application acceptance rates in 32 metropolitan areas that supports a targeted definition of underserved areas.[30] They found: (a) Low-income census tracts and tracts with high concentrations of African American and Hispanic families had lower rates of mortgage applications, originations, and acceptance rates; [31] and (b) once census tract influences were accounted for, central city location had only a minimal effect on credit flows.

Shear, Berkovec, Dougherty, and Nothaft recognized that it is difficult to interpret their estimated minority effects—the effects may indicate lender discrimination, supply and demand effects not included in their model but correlated with minority status, or some combination of these factors. They explain the implications of their results for measuring underserved areas as follows:

While it is not at all clear how we might rigorously define, let alone measure, what it means to be underserved, it is clear that there are important housing-related problems associated with certain location characteristics, and it is possible that, in the second or third best world in which we live, mortgage markets might be useful in helping to solve some of these problems. We then might use these data to help single out important areas or at least eliminate some bad choices. * * * The regression results indicate that income and minority status are better indicators of areas with special needs than central city location.[32]

Avery, Beeson, and Sniderman Study. Robert Avery, Patricia Beeson, and Mark Sniderman of the Federal Reserve Bank of Cleveland presented a paper specifically addressing the issue of underserved areas in the context of the GSE legislation.[33] Their study examines variations in application rates and denial rates for all individuals and census tracts included in the 1990 and 1991 HMDA data base. They seek to isolate the differences that stem from the characteristics of the neighborhood itself rather than the characteristics of the individuals that apply for loans in the neighborhood or lenders that happen to serve them. Similar to the studies of redlining reviewed in the previous section, Avery, Beeson and Sniderman hypothesize that variations in mortgage application and denial rates will be a function of several risk variables such as the income of the applicant and changes in neighborhood house values; they test for independent racial effects by adding to their model the applicant's race and the racial composition of the census tract. Econometric techniques are used to separate individual applicant effects from neighborhood effects.

Based on their empirical work, Avery, Beeson and Sniderman reach the following conclusions:

The individual applicant's race exerts a strong influence on mortgage application and denial rates. African American applicants, in particular, have unexplainably high denial rates.

• Once individual applicant and other neighborhood characteristics are controlled for, overall denial rates for purchase and refinance loans were only slightly higher in minority census tracts than non-minority census tracts.[34] For white applicants, on the other hand, denial rates were significantly higher in minority tracts.[35] That is,

[29] The Preamble to the 1995 Rule provides additional reasons why central city location should not be used as a proxy for underserved areas.

[30] William Shear, James Berkovec, Ann Dougherty, and Frank Nothaft, ''Unmet Housing Needs: The Role of Mortgage Markets,'' Journal of Housing Economics, Volume 4 , 1996, pp. 291–306. These researchers regressed the number of mortgage originations per 100 properties in the census tract on several independent variables that were intended to account for some of the demand and supply (i.e., credit risk) influences at the census tract level. The tract's minority composition and central city location were included to test if these characteristics were associated with underserved neighborhoods after controlling for the demand and supply variables. Examples of the demand and supply variables at the census tract level include: tract income relative to the area median income, the increase in house values between 1980 and 1990, the percentage of units boarded up, and the age distributions of households and housing units. See also Susan Wharton Gates, ''Defining the Underserved,'' Secondary Mortgage Markets, 1994 Mortgage Market Review Issue, 1995, pp. 34–48.

[31] For example, census tracts at 80 percent of area median income were estimated to have 8.6 originations per 100 owners as compared with 10.8 originations for tracts over 120 percent of area median income.

[32] Shear *et al.,* p. 18.

[33] See Avery, *et al.*

[34] Avery *et al.* find very large unadjusted differences in denial rates between white and minority neighborhoods, and although the gap is greatly reduced by controlling for applicant characteristics (such as race and income) and other census tract characteristics (such as house price and income level), a significant difference between white and minority tracts remains (for purchase loans, the denial rate difference falls from an unadjusted level of 16.7 percent to 4.4 percent after controlling for applicant and other census tract characteristics, and for refinance loans, the denial rate difference falls from 21.3 percent to 6.4 percent). However, when between-MSA differences are removed, the gap drops to 1.5 percent and 1.6 percent for purchase and refinance loans, respectively. See Avery, *et al.,* p. 16.

[35] Avery, *et al.,* page 19, note that, other things equal, a black applicant for a home purchase loan

Continued

minorities have higher denial rates wherever they attempt to borrow but whites face higher denials when they attempt to borrow in minority neighborhoods. In addition, Avery *et al.* found that home improvement loans had significantly higher denial rates in minority neighborhoods. Given the very strong effect of the individual applicant's race on denial rates, Avery *et al.* note that since minorities tend to live in segregated communities, a policy of targeting minority neighborhoods may be warranted.

Other findings are:

The median income of the census tract had strong effects on both application and denial rates for purchase and refinance loans, even after other variables were accounted for.

• There is little difference in overall denial rates between central cities and suburbs, once individual applicant and census tract characteristics are controlled for. Avery, Beeson and Sniderman conclude that a tract-level definition is a more effective way to define underserved areas than using the list of OMB-designated central cities as a proxy.

e. Conclusions From HUD's Analysis and the Economics Literature About Urban Underserved Areas

The implications of studies by HUD and others for defining underserved areas can be summarized briefly. First, the existence of large geographic disparities in mortgage credit is well documented. HUD's analysis of HMDA data shows that low-income and high-minority neighborhoods receive substantially less credit than other neighborhoods and fit the definition of being underserved by the nation's credit markets.

Second, researchers are testing models that more fully account for the various risk, demand, and supply factors that determine the flow of credit to urban neighborhoods. The studies by Holmes and Horvitz, Schill and Wachter, and Tootell are examples of this research. Their attempts to test the redlining hypothesis show the analytical insights that can be gained by more rigorous modeling of this issue. However, the fact that our urban areas are highly segregated means that the various loan, applicant, and neighborhood characteristics currently being used to explain credit flows are often highly correlated with each other which makes it difficult to reach definitive conclusions about the relative importance of any single variable such as neighborhood racial composition. Thus, their results are inclusive and, thus, the need continues for further research on the underlying determinants of geographic disparities in mortgage lending.[36]

Finally, much research strongly supports a targeted definition of underserved areas. Studies by Shear, *et al.* and Avery, Beeson, and Sniderman conclude that characteristics of both the applicant and the neighborhood where the property is located are the major determinants of mortgage denials and origination rates—once these characteristics are controlled for, other influences such as central city location play only a minor role in explaining disparities in mortgage lending. HUD's analysis shows that both credit and socioeconomic problems are highly concentrated in underserved areas within central cities and suburbs. The remaining, high-income portions of central cities and suburbs appear to be well served by the mortgage market.

HUD recognizes that the mortgage origination and denial rates forming the basis for the research mentioned in the preceding paragraph, as well as for HUD's definition of underserved areas, are the result of the interaction of individual risk, demand and supply factors that analysts have yet to fully disentangle and interpret. The need continues for further research addressing this problem. HUD believes, however, that the economics literature is consistent with a targeted rather than a broad approach for defining underserved areas.

C. Consideration of Factors 1 and 2 in Nonmetropolitan Areas: The Housing Needs of Underserved Rural Areas and the Housing, Economic, and Demographic Conditions in Underserved Rural Areas

Because of the absence of HMDA data for rural areas, the analysis for metropolitan underserved areas cannot be carried over to non-metropolitan areas. Based on discussions with rural lenders in 1995, the definition of underserved rural areas was established at the county level, since such lenders usually do not make distinctions on a census tract basis. But this definition parallels that used in metropolitan areas—specifically, a nonmetro county is classified as an underserved area if median income of families in the county does not exceed 95 percent of the greater of state nonmetro or national nonmetro median income, or minorities comprise 30 percent or more of the residents and the median income of families in the county does not exceed 120 percent of state nonmetro median income. For nonmetro areas the median income component of the underserved definition is broader than that used for metropolitan areas. While tract income is compared with area income for metropolitan areas, in rural counties income is compared with ''enhanced income''—the greater of state nonmetro income and national nonmetro income. This is based on HUD's analysis of 1990 census data, which indicated that comparing county nonmetro income only to state nonmetro income would lead to the exclusion of many lower-income low-minority counties from the definition, especially in Appalachia. Underserved counties account for 57 percent (8,091 of 14,419) of the census tracts and 54 percent of the population in rural areas. By comparison, the definition of metropolitan underserved areas encompassed 47 percent of metropolitan census tracts and 44 percent of metropolitan residents.

The county-wide definition of rural underserved areas could give the GSEs an incentive to purchase mortgages in the ''better served'' portions of underserved counties which may face few, if any, barriers to accessing mortgage credit in rural areas. This issue is discussed in more detail in the analysis of the GSEs' purchases below.

The demographic characteristics of served and underserved counties are first presented in this section. Next, a literature review of recent studies provides an overview of rural mortgage markets, GSE activity, and the growing demand for manufactured housing in rural housing markets. It also discusses characteristics of rural housing markets that lead to higher interest rates and mortgage access problems and makes some policy recommendations for addressing market inefficiencies.

1. Demographics

As discussed, majorities of rural households and rural counties fall under the definition of underserved areas. As shown in Table B.4, rural underserved counties have higher unemployment, poverty rates, minority shares of households and homeownership rates than rural served counties. The poverty rate in underserved rural counties (21.2 percent) is nearly twice that in served rural counties (12.2 percent). Joblessness is more common, with average unemployment rates of 8.3 percent in underserved counties and 5.9 percent in served counties. Minorities make up 20.8 percent of the residents in underserved counties and 7.4 percent in served counties. Homeownership is slightly higher in underserved counties (72.4 percent) than in served counties (70.8 percent).

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is 3.7 percent more likely to have his/her application denied in an all-minority tract than in an all-white tract, while a white applicant from an all-minority tract would be 11.5 percent more likely to be denied.

[36] Methodological and econometric challenges that researchers will have to deal with are discussed in Mitchell Rachlis and Anthony Yezer, ''Serious Flaws in Statistical Tests for Discrimination in Mortgage Markets,'' Journal of Housing Research, Volume 4, 1993, pp. 315–336.

Table B.4

Socioeconomic Characteristics of Underserved Counties in Non-Metropolitan Areas

	Served Counties	Underserved Counties	Total
Counties	786	1,511	2,297
Households	8,618,519	10,097,825	18,716,344
Population	23,075,383	27,467,972	50,543,355
Unemployment Rate	5.9%	8.3%	7.1%
Poverty Rate	12.2%	21.2%	17.1%
Dropout Rate	16.3%	22.7%	19.8%
Percent Female Household With Children	14.3%	17.5%	16.1%
Percent African-American	3.9%	12.4%	8.5%
Percent Minority	7.4%	20.8%	14.7%
Percent Owner-Occupied	70.8%	72.4%	71.6%
Percent Renter	29.2%	27.6%	28.4%

Source: 1990 Census.

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Some differences exist between metro and nonmetro underserved areas. The definition is somewhat more inclusive in nonmetro areas—the majority of the nonmetro population lives in underserved counties, while the majority of the metropolitan population lives in served areas. The majority of units in underserved metropolitan areas are occupied by renters, while the majority of units in underserved rural counties are occupied by owners. But poverty and unemployment rates are higher in underserved areas than in served areas in both nonmetropolitan and metropolitan areas.

2. Literature Review

Research related to housing and mortgage finance issues in rural areas is reviewed in this section. It finds that lack of competition between rural lenders and lack of participation in secondary mortgage markets may contribute to higher interest rates and lower mortgage availability in rural areas. The mortgages purchased by the GSEs on properties in underserved counties are not particularly focused on lower-income borrowers and first-time homebuyers, which suggests that additional research needs to be conducted to target areas in nonmetropolitan areas which experience difficulty accessing mortgage credit. The role of manufactured housing in providing affordable housing in rural areas is also discussed.

Mikesell Study (1998).[37] A study by Jim Mikesell provides an overview of mortgage lending in rural areas. It finds that home loans in rural areas have higher costs, which can be attributed to at least three factors that characterize rural mortgage markets. First, the fixed cost associated with rural lending may be higher as a result of the smaller loan size and remoteness of many rural areas. Second, there are fewer mortgage lenders in rural areas competing for business, which may account for higher interest rates. Third, the secondary mortgage market is not as well developed as in metropolitan areas.

Higher interest rates for rural mortgages are documented by the Federal Housing Finance Board's monthly survey of conventional home purchase mortgages. On average, relative to rates on mortgages in urban areas, rates on mortgages in rural areas in 1997 were 8 basis points (bp) higher on 30-year fixed rate mortgages (FRMs), 18 bp higher for 15-year FRMs, 38 bp higher for adjustable-rate mortgages (ARMs), and 52 bp higher for nonstandard loans.[38] The higher rates in rural areas translate into differences in monthly payments of $3 to $16 for a $100,000 mortgage.

Mikesell finds that property location and small loan size are two factors that make lending more costly in rural areas. Borrower characteristics, such as income, assets, and credit history, and lender characteristics, such as ownership, size, and location, might influence loan pricing, but the influence of these factors could not be tested due to lack of data.

Rural-based lenders are fewer and originate a smaller volume of loans than their urban counterparts. These factors contribute to less competition between rural lenders and a less efficient housing finance market, which result in higher costs for rural borrowers.

Rural lenders are less likely than urban lenders to participate in the secondary mortgage market. As a result, rural borrowers do not receive the benefits associated with the secondary market—the increased competition between lenders, the greater potential supply of mortgage financing, and the alignment of financing costs more closely with those in urban markets.

Some obstacles for rural lenders participating in the secondary market are that borrower characteristics and remote properties may not conform to the secondary market's underwriting standards. Rural households may have their borrowing capacity reduced by loan qualification standards which discount income that varies widely from year to year and income from self-employment held for less than several years. Rural properties' may have one or more of the following characteristics which preclude a mortgage from being purchased by the GSEs: Excessive distance to a firehouse, unacceptable water or sewer facilities, location on a less-than-all-weather road, and dated plumbing or electrical systems.

Mikesell concludes that increased participation by rural lenders in the secondary mortgage market would bring down lending costs and offset some of the higher costs characteristic of rural lending, and that HUD's goals for the GSEs could encourage such increased participation.

MacDonald Study.[39] **This study investigates variations in GSE market shares among a sample of 426 non-metropolitan counties in eight census divisions. Conventional conforming mortgage originations are estimated using residential sales data, adjusted to exclude non-conforming mortgages. Multivariate analysis is used to investigate whether the GSE market share differs significantly by location, after controlling for the economic, demographic, housing stock, and credit market differences among counties that could affect use of the secondary markets by lenders.**[40]

MacDonald has four main findings regarding mortgage financing and the GSEs' purchases in rural mortgage markets. First, smaller, poorer and less rapidly growing non-metro areas have less access to mortgage credit than larger, wealthier and more rapidly growing areas. Second, the mortgages that are originated in the former areas are seldom purchased by the GSEs. Third, higher-income borrowers are more likely, and first-time homebuyers are less likely, to be served by the GSEs in underserved than in served areas. This suggests that the GSEs are not reaching out to marginal borrowers in underserved nonmetropolitan areas. Finally, the GSEs serve a smaller proportion of the low-income market in rural areas than do depository institutions. This finding is consistent with studies of the GSEs' affordable lending performance in metropolitan areas.

With regard to the GSEs' underwriting guidelines MacDonald makes two points. First, the GSEs' purchase guidelines may adversely affect non-metro areas where many borrowers are seasonally- or self-employed and where houses pose appraisal problems. Second, MacDonald speculates that mortgage originators in nonmetropolitan areas may interpret guidelines too conservatively, or may not try to qualify non-traditional borrowers for mortgages.

MacDonald also echoes the findings of Mikesell that the existence and extent of mortgage lending problems are difficult to identify in many rural areas because of the lack of comprehensive mortgage lending data. Problems that have been identified include the lack of market competition among small, conservative lending institutions typical in rural and non-metropolitan areas; consolidation and other changes in the financial services industry, which may have different consequences in rural areas than in urban areas; lack of access to government housing finance programs in more rural locations; and weak development of secondary market sources of funds in rural areas, exacerbating liquidity problems.

MacDonald discusses briefly the importance of low-cost homeownership alternatives in rural areas. One alternative is manufactured (mobile) housing. In general, manufactured housing is less costly to construct than site-built housing. Manufactured housing makes up more than 25 percent of the housing stock in rural counties in the South and Mountain states.

MacDonald concludes that the lower participation of the GSEs in underserved areas compared with served areas may result from additional risk components for some borrowers and from lack of sophistication by the lenders that serve

[37] Mikesell, Jim. Can Federal Policy Changes Improve the Performance of Rural Mortgage Markets, Economic Research Service, U.S. Department of Agriculture, Issues in Agricultural and Rural Finance. Agriculture Information Bulletin No. 724–12, August 1998.

[38] Standard mortgage types are 30-year fixed-rate mortgages, 15-year FRMs and 30-year adjustable rate mortgages (ARMs). These are the ones most often traded in the secondary markets. Nonstandard mortgages generally have shorter terms than the standard mortgages.

[39] MacDonald, Heather. Fannie Mae and Freddie Mac in Rural Housing Markets: Does Space Matter? Study funded as part of the 1997 GSE Small Grants by HUD's Office of Policy Development and Research.

[40] MacDonald constructs a county-level mortgage market data in rural areas using information collected by the Department of Revenue for counties and states. Annual Sales Ratio Studies conducted by many states' Department of Revenue provide the number of sales for different property types. This is done by using residential sales recorded for property tax purposes. Other county-level variables used to compare rural counties are obtained from the 1990 Census of Population and Housing and Bureaus of labor Statistics. Data obtained from Census included county populations, racial composition, a variety of housing stock characteristics like home ownership rates, vacancy rates, proportion of owner-occupied mobile homes, median housing value in 1990, median age of the housing stock, proportion of units with complete plumbing, and access to infrastructure, *e.g.,* public roads and sewage systems. Data collected from the Bureau of Labor Statistics included unemployment rates and residential building permits.

small non-metro markets. In smaller and poorer counties, low volumes of loan sales to the GSEs may be a result of lower incomes and smaller populations. These counties may not have sufficient loan-generating activity to justify mortgage originators pursuing secondary market outlets.

***The Role of Manufactured Housing.*[41] The Joint Center for Housing Studies at Harvard University conducted a comprehensive study of the importance of manufactured housing as an affordable housing choice in rural communities. In all segments of the housing market, but especially in rural areas and among low-income households, manufactured housing is growing. Based on the American Housing Survey, in 1985, 61 percent of manufactured housing stock was located in rural areas compared with 70 percent in 1993. Between 1985 and 1993, manufactured housing increased over 2.2 percent annually while all other housing increased 0.7 percent per year. In 1993, 6.0 percent (or 6 million) of households lived in manufactured housing.**

Since the 1970's, the face of manufactured housing has changed. Once a highly mobile form of recreational housing in this country, today manufactured housing provides basic quality, year-round housing for millions of American households. Most earlier units were placed in mobile home parks or on leased parcels of land. Today an increasing number of units are owned by households that also own the land on which the manufactured home is located.

Manufactured housing's appeal lies in its affordability. The low purchase price, downpayments, and monthly cash costs of manufactured housing provide households who are priced out of the conventional housing market a means of becoming homeowners. The occupants of manufactured housing on average are younger, have less income, have less education and are more often white than occupants of single-family detached homes. This type of housing is often found in areas with persistent poverty, retirement destinations, areas for recreation and vacations, and commuting counties.

The manufactured housing industry is well positioned for continued growth. The affordability of manufacturing housing is increasingly attractive to the growing ranks of low-income households. Manufactured housing is becoming more popular among first-time homebuyers and the elderly, both of which are growing segments of the housing market. The migration of people to the South, where manufactured housing is already highly accepted, and to metropolitan fringes will further increase the demand for this type of housing.[42]

[41] The Future of Manufactured Housing, Harvard University Joint Center for Housing Studies, February 1997.

D. Factor 3: Previous Performance and Effort of the GSEs in Connection With the Central Cities, Rural Areas and Other Underserved Areas Goal

As discussed in Sections B and C, HUD has structured the Geographically Targeted Goal to increase mortgage credit to areas underserved by the mortgage markets. This section looks at the GSEs' past performance to determine the impact the Geographically Targeted Goal is having on borrowers and neighborhoods with particular emphasis on underserved areas. Section D.1 reports the past performance of each GSE with regard to the Geographically Targeted Goal. Section D.2 then examines the role that the GSEs are playing in funding single-family mortgages in underserved urban neighborhoods based on HUD's analysis of GSE and HMDA data. Section D.3 concludes this section with an analysis of the GSEs' purchases in rural (nonmetropolitan) areas.

[42] Though future demand for manufactured housing is promising, the Joint Center notes some continued obstacles to growth. Challenges for the industry to overcome include a lack of standardization of installation procedures and product guarantees, exclusionary zoning laws, and certain provisions of the national building code.

1. GSE Performance on the Geographically Targeted Goal

This section discusses each GSE's performance under the Geographically Targeted Goal over the 1993–98 period. The data presented here are ''official results''—i.e., they are based on HUD's in-depth analysis of the loan-level data submitted annually to the Department, subject and the counting provisions contained in Subpart B of HUD's December 1, 1995 Regulation of Fannie Mae and Freddie Mac. As explained below, in some cases these ''official results'' differ to some degree from goal performance reported by the GSEs in their Annual Housing Activities Reports to the Department.

HUD's goals specified that in 1996 at least 21 percent of the number of units eligible to count toward the Geographically Targeted Goal should qualify as geographically targeted, and at least 24 percent should qualify in 1997 and 1998. Actual performance, based on HUD analysis of GSE loan-level data, was as follows:

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	1996	1997	1998
Fannie Mae:			
Units Eligible to Count Toward Goal...	1,891,896	1,765,347	3,546,302
Geographically Targeted Units.....	532,434	508,746	958,233
Percent Geographically Targeted.....	28.1%	28.8%	27.0%
Freddie Mac:			
Units Eligible to Count Toward Goal...	1,325,900	1,180,517	2,658,556
Geographically Targeted Units.....	331,495	310,572	693,748
Percent Geographically Targeted.....	25.0%	26.3%	26.1%

Thus, Fannie Mae surpassed the goals by 7.1 percentage points and 4.8 percentage points in 1996 and 1997, respectively, and Freddie Mac surpassed the goals by 4.0 and 2.3 percentage points. In 1998 Fannie Mae's performance fell by 1.8 percentage points, while Freddie Mac's performance fell slightly, by 0.2 percentage point.[43]

Fannie Mae's performance on the Geographically Targeted Goal jumped sharply in just two years, from 23.6 percent in 1993 to 31.9 percent in 1995, before tailing off to 28.1 percent in 1996. As indicated, it then rose slightly to 28.8 percent in 1997, before tailing off to 27.0 percent last year. Freddie Mac has shown more steady gains in performance on the Geographically Targeted Goal, from 21.3 percent in 1993 to 24.2 percent in 1994, 25 percent in 1995–96, and just over 26 percent last year.

Fannie Mae's performance on the Geographically Targeted Goal has surpassed Freddie Mac's in every year. However, Freddie Mac's 1998 performance represented a 23 percent increase over the 1993 level, exceeding the 14percent increase for Fannie Mae. And Freddie Mac's performance was 97 percent of Fannie Mae's geographically targeted share in 1998, the highest ratio since the interim goals took effect in 1993.

2. GSEs' Mortgage Purchases in Metropolitan Neighborhoods

As shown in Table B.5, metropolitan areas accounted for about 85 percent of total GSE purchases under the Geographically Targeted Goal. This section uses HMDA and GSE data for metropolitan areas to examine the neighborhood characteristics of the GSEs' mortgage purchases. In subsection 2.a, the GSEs' performance in underserved neighborhoods is compared with that of portfolio lenders and the overall market. This section therefore expands on the discussion in Appendix A, which compared the GSEs' funding of affordable loans with the overall conventional conforming market. In subsection 2.b., the characteristics of the GSEs' purchases within underserved areas are compared with those for their purchases in served areas.

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[43] The Fannie Mae figures for 1997 differ from corresponding figures presented by Fannie Mae in its Annual Housing Activity Report to HUD by 0.2 percentage points, reflecting minor differences in application of counting rules. The percentages shown above for Fannie Mae in 1996 and 1998 and for Freddie Mac in 1996–1998 are identical to the corresponding percentages in the GSEs' Annual Housing Activity Reports.

Table B.5

Fannie Mae and Freddie Mac Acquisitions of Single-Family and Multifamily Units in Underserved Metro and Nonmetro Areas in 1996 and 1997

	Fannie Mae		Freddie Mac	
	1996	1997	1996	1997
Metropolitan				
Number of Underserved Units	458,925	435,900	266,677	255,729
Percent of Total Units	27.2%	27.8%	23.4%	25.3%
Total	1,686,975	1,570,117	1,138,243	1,012,584
Nonmetropolitan				
Number of Underserved Units	73,509	72,846	64,818	54,842
Percent of Total Units	36.6%	38.2%	34.6%	32.7%
Total	200,961	190,461	187,560	167,932
Overall				
Number of Underserved Units	532,434	508,746	331,495	310,571
Percent of Total Units	28.1%	28.8%	25.0%	26.3%
Total Eligible*	1,891,896	1,765,346	1,325,899	1,180,516

* Overall totals may exceed the metro/nonmetro sum due to units in unidentified census tracts.

Comparisons With the Primary Market

Overview and Main Conclusions. Tables A.3 and A.4a in Appendix A provided information on the GSEs' funding of home purchase loans for properties located in underserved neighborhoods for the years 1993 to 1998. The findings with respect to the GSEs' funding of underserved neighborhoods are similar to those reported in Appendix A regarding the GSEs' overall affordable lending performance. Both GSEs have improved their performance over the past six years but, on average, they continue to lag the conventional conforming market in providing affordable loans to underserved neighborhoods. As discussed in Appendix A, the two GSEs show very different patterns of lending—Freddie Mac has been much less likely than Fannie Mae to fund home loans in underserved neighborhoods. The percentage of Freddie Mac's purchases financing properties in underserved census tracts is substantially less than the percentage of total market originations in these tracts; furthermore, since 1992 Freddie Mac has not made any progress closing the gap with the primary market. Fannie Mae, on the other hand, is much closer to market levels in its funding of underserved areas. The same issue discussed in Appendix A about the down payment characteristics of the GSEs' purchases can also be raised about their purchases in underserved areas—the GSEs' typically purchase high down payment mortgages in these areas, which reduces their ability to help lower-income, cash-constrained borrowers seeking to purchase properties in these neighborhoods. The remainder of this section present data to support these conclusions.

Freddie Mac. During the 1993–1998 period, Freddie Mac has lagged Fannie Mae, portfolio lenders, and the overall conforming market in providing home loans to underserved neighborhoods. Underserved census tracts (as defined by HUD) accounted for 19.7 percent of Freddie Mac's single-family home mortgages, compared with 22.9 percent of Fannie Mae's purchases, 26.3 percent of loans originated and held in portfolio by depository lenders, and 24.5 percent of the overall conforming primary market. If the analysis is restricted to the 1996–98 period during which the current housing goals have been in effect, the data continue to show that Freddie Mac has lagged the market in funding underserved neighborhoods (see Table A.3 in Appendix A). In 1998, underserved census tracts accounted for 20.0 percent of Freddie Mac's purchases and 24.6 percent of loans originated in the conforming home purchase market, yielding a ''Freddie Mac-to-market'' ratio of only 0.81 (i.e. 20.0 divided by 24.6).

Fannie Mae. Over the longer 1993–98 period and the more

recent 1996–98 period, Fannie Mae has lagged the market and portfolio lenders in funding properties in underserved areas, but to a much smaller degree than Freddie Mac. During the 1996–98 period, underserved tracts accounted for 22.9 percent of Fannie Mae's purchases, compared with 25.8 percent of loans retained in portfolio by depositories and with 24.9 percent of home loans originated in the conventional conforming market. Fannie Mae's performance is much closer to the market than Freddie Mac's performance, as can be seen by the ''Fannie Mae-to-market'' ratio of 0.92 for the 1996–98 period (*i.e.* 22.9 divided by 24.9).

Fannie Mae's performance improved during 1997, due mainly to Fannie Mae's increased purchases during 1997 of prior-year mortgages in underserved neighborhoods. Overall, Fannie Mae's purchases of home loans in underserved areas increased from 22.3 percent in 1996 to 23.5 percent in 1997. The underserved area percentage for Fannie Mae's purchases of newly-originated mortgages was actually lower in 1997 (20.8 percent) than in 1996 (21.9 percent). This decline was offset by the fact that a particularly high percentage (30.1 percent) of Fannie Mae's 1997 purchases of prior-year mortgages was for properties in underserved areas. Thus, Fannie Mae improved its overall performance in 1997 by supplementing its purchases of newly-originated mortgages with purchases of prior-year mortgages targeted to underserved neighborhoods. As shown in Table A.4a in Appendix A, Fannie Mae continued this strategy in 1998.

The annual data in Table A.4a show the progress that Fannie Mae has made closing the gap between its performance and that of the overall market. In 1992, underserved areas accounted for 18.3 percent of Fannie Mae's purchases and 22.2 percent of market originations, for a ''Fannie Mae-to-market'' ratio of 0.82. By 1998, underserved areas accounted for 22.9 percent of Fannie Mae's purchases and 24.6 percent of market originations, for a higher ''Fannie Mae-to-market'' ratio of 0.93. Freddie Mac, on the other hand, fell further behind the market during this period. In 1992, Freddie Mac had a slightly higher underserved area percentage (18.6 percent) than Fannie Mae (18.3 percent). However, Freddie Mac's underserved area percentage had only increased to 20.0 percent by 1998 (versus 22.9 percent for Fannie Mae). Thus, the ''Freddie Mac-to-market'' ratio fell from 0.84 in 1992 to 0.81 in 1998.

Down Payment Characteristics. Table B.6 reports the down payment and borrower income characteristics of mortgages that the GSEs purchased in underserved areas during 1997. Two points stand out. First, loans on properties in underserved areas were more likely to have a high loan-to-value ratio than loans on properties in served areas. Specifically, about 18 percent of loans in undeserved areas had a down payment less than ten percent, compared with 15 percent of all loans purchased by the GSEs. Second, loans to low-income borrowers in underserved areas were typically high down payment loans. Approximately 70 percent of the GSE-purchased loans to very low-income borrowers living in underserved areas had a down payment more than 20 percent.

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Table B.6

Down Payment Characteristics of GSE Purchases in Underserved Areas, 1997

	Size of Down Payment				
GSE Purchases	Less Than 5 Percent Down	5 to 10 Percent Down	10 to 20 Percent Down	20 Percent or More Down	Total [1]
All Loans	36,703	328,467	365,981	1,638,798	2,369,949
Loans in Underserved Areas	16,265	87,092	91,537	374,087	568,981
Very- Low-Income Loans	4,764	10,463	9,282	57,762	82,271
Less- Than-Median Income Loans	13,617	38,995	37,831	173,687	264,130
Percentage Distribution					
All Loans	1.5%	13.9%	15.4%	69.1%	100.0%
Loans in Underserved Areas	2.9%	15.3%	16.1%	65.7%	100.0%
Very- Low-Income Loans	5.8%	12.7%	11.3%	70.2%	100.0%
Less- Than-Median Income Loans	5.2%	14.8%	14.3%	65.8%	100.0%

Source: National File A of the GSE Public Use Data Base. Data include all owner-occupied one-unit mortgages (home purchase, refinance, and second loans) purchased by the GSEs in underserved areas (both metropolitan and non-metropolitan) in 1997.

[1] Loans with missing down payments are excluded.

Table B.7

Loan and Borrower Characteristics of Single-Family Mortgages Purchased by the GSEs In Metropolitan Areas, 1997

Loan and Borrower Characteristics	Fannie Mae		Freddie Mac		Total	
	Served	Underserved	Served	Underserved	Served	Underserved
Number of Loans	944,391	276,434	667,269	174,981	1,611,660	451,415
Loan Purpose						
Home Purchase	63.7 %	62.9 %	60.8 %	54.6 %	63.2 %	61.3 %
Refinancing	36.3	37.1	39.2	45.4	36.8	38.7
Seasoning						
Seasoned	13.7 %	20.9 %	6.2 %	7.4 %	10.6 %	19.2 %
Not Seasoned	86.3	70.1	93.8	92.6	89.4	80.8
Loan-to-Value Ratio						
Over 95%	1.6 %	4.9 %	0.4 %	1.1 %	1.1 %	3.4 %
91-95%	13.2	15.9	14.4	17.2	13.7	16.4
81-90%	15.8	16.4	14.9	15.2	15.4	16.0
61-80%	50.0	47.0	52.1	51.7	50.9	48.8
60% or Less	19.4	15.8	18.3	14.8	18.9	15.4
Income of Borrower(s)						
60% of Area Median or Below	7.3 %	18.2 %	6.6 %	15.8 %	7.0 %	17.2 %
61-100% of Median	25.9	36.2	25.6	35.3	25.8	35.8
Below Area Median	33.2	54.4	32.2	51.0	32.8	53.1
Over 100% of Median	66.8	45.6	67.8	49.0	67.2	46.9
First-time Home Buyer	18.1 %	23.2 %	15.5 %	18.3 %	17.0 %	21.3 %
Race/National Origin of Borrower						
White	88.7 %	68.5 %	90.8 %	74.3 %	89.6 %	70.8 %
African American	2.4	9.3	2.1	7.1	2.3	8.4
Hispanic	3.5	13.1	2.8	11.4	3.2	12.4
Asian or Pacific Islander	3.7	7.2	2.9	5.6	3.4	6.6
American Indian or Alaskan Native	0.4	0.4	0.3	0.4	0.3	0.4
Other.	1.3	1.5	1.2	1.3	1.3	1.4
Age of Borrower						
Under 30	13.0 %	15.1 %	12.8 %	14.0 %	12.9 %	14.6 %
30-39	35.8	33.0	36.6	33.3	36.1	33.1
40 and Over	51.2	52.0	50.5	52.7	50.9	52.3
Gender of Borrower(s)						
All Male	16.7 %	22.3 %	16.2 %	21.4 %	16.5 %	21.9 %
All Female	15.9	21.3	15.5	20.1	15.7	20.8
Male and Female	67.4	56.4	68.3	58.6	67.7	57.2

Source: HUD analysis of GSEs' loan-level data on mortgages on owner-occupied one-unit properties. In computing the percentages, missing data are excluded.

b. Characteristics of GSEs' Purchases of Mortgages on Properties in Metropolitan Underserved Areas

Several characteristics of loans purchased by the GSEs in metropolitan underserved areas are presented in Table B.7. As shown, borrowers in underserved areas are more likely than borrowers in served areas to be first-time homebuyers, females, and older than 40 or younger than 30. And, as expected, they are more likely to have below-median income and to be members of minority groups. For example, first-time homebuyers make up 21 percent of the GSEs' mortgage purchases in underserved areas and 17 percent of their business in served areas. In underserved areas, 53 percent of borrowers have incomes below the area median, compared with 33 percent of borrowers in served areas.

Minorities' share of the GSEs' mortgage purchases in underserved areas (29.2 percent) was nearly three times their share in served areas (10.5 percent). And the pattern was even more pronounced for African Americans and Hispanics, who accounted for 20.8 percent of the GSEs' business in underserved areas, but only 5.5 percent of their purchases in served areas.

Other differences between the GSEs' purchases in underserved and served areas include the fact that prior-year mortgages comprised a higher percentage of Fannie Mae's loans in underserved areas (32.8 percent) than in served areas (25.3 percent) in 1997, which suggests that Fannie Mae may be purchasing prior-year loans in underserved areas to raise its performance on the Geographically Targeted Goal. Also, refinance mortgages comprised a higher percentage of Freddie Mac's loans in underserved areas (44.6 percent) than in served areas (38.8 percent) in 1997, possibly due to the fact that refinance mortgages, which typically have lower loan-to-value ratios than home purchase mortgages, have lower probabilities of default or severity of loss.

3. GSE Mortgage Purchases in Nonmetropolitan Areas

Nonmetropolitan mortgage purchases made up 14 percent of the GSEs' total mortgage purchases in 1997. Mortgages in underserved counties made up 38 percent of the GSEs' business in rural areas. [44]

Unlike the underserved definition for metropolitan areas which was based on census tracts, the rural underserved definition was based on counties. Rural lenders argued that they identified mortgages by the counties in which they were located rather than the census tracts; and therefore, census tracts were not an operational concept in rural areas. Market data on trends in mortgage lending for metropolitan areas is provided by the Home Mortgage Disclosure Act (HMDA); however, no comparable data source exists for rural mortgage markets. The absence of rural market data is a constraint for evaluating credit gaps in rural mortgage lending and for defining underserved areas.

The broad nature of the underserved definition for nonmetropolitan areas raises at least two concerns. The first concern is whether the broad definition overlooks differences in borrower characteristics in served and underserved counties that should be included in the definition. Table B.8 compares borrower and loan characteristics for the GSEs' mortgage purchases in served and underserved areas. The GSEs are less likely to purchase loans for first-time homebuyers and more likely to purchases mortgages for high-income borrowers in underserved than in served counties. Mortgages to first-time homebuyers account for 13.9 percent of the GSEs' mortgage purchases in served counties compared with 12.3 percent in underserved counties. Surprisingly, borrowers in served counties are more likely to have incomes below the median than in underserved counties (34.5 percent compared to 28.8 percent). These findings support the claim that, in rural underserved counties, the GSEs purchase mortgages for borrowers that probably encounter few obstacles to obtaining mortgage credit.

[44] Underserved areas make up about 56 percent of the census tracts in nonmetropolitan areas and 47 percent of the census tracts in metropolitan areas. This is one reason why underserved areas comprise a larger portion of the GSEs' single-family mortgages in nonmetropolitan areas (38 percent) than in metropolitan areas (22 percent).

Table B.8

Loan and Borrower Characteristics of Single-Family Mortgages Purchased by the GSEs In Non-Metropolitan Counties, 1997

Loan and Borrower Characteristics	Fannie Mae		Freddie Mac		Total	
	Served	Underserved	Served	Underserved	Served	Underserved
Number of Loans	108,236	69,275	94,810	52,578	203,046	121,853
Loan Purpose						
Home Purchase	57.5 %	58.3 %	50.3 %	48.3 %	54.2 %	54.1
Refinancing	425.0	41.7	49.7	51.7	45.8	45.9
Seasoning						
Seasoned	25.9 %	30.9 %	16.3 %	16.2 %	21.5 %	24.8
Not Seasoned	74.1	69.1	83.7	83.8	78.5	75.2
Loan-to-Value Ratio						
Over 95%	1.6 %	1.1 %	0.3 %	0.2 %	1.0 %	0.7
91-95%	12.6	13.6	12.7	13.9	12.7	13.7
81-90%	13.7	15.0	12.7	13.1	13.2	14.1
61-80%	51.5	50.4	54.5	54.2	52.9	52.1
60% or Less	20.6	20.0	19.8	18.6	20.2	19.4
Income of Borrower(s)						
60% of Area Median or Below	7.8 %	6.6 %	7.2 %	6.1 %	7.5 %	6.4
61-100% of Median	27.2	22.3	26.7	22.7	27.0	22.5
Below Area Median	35.0	28.9	33.9	28.7	34.5	28.8
Over 100% of Median	65.0	71.1	66.1	71.3	65.5	71.2
First-time Home Buyer	15.2 %	13.0 %	12.4 %	11.4 %	13.9 %	12.3
Race/National Origin of Borrower						
White	95.8 %	90.2 %	96.6 %	93.4 %	96.2 %	91.6
African American	1.1	3.5	0.8	2.0	1.0	2.8
Hispanic	1.3	3.4	1.1	2.4	1.2	2.9
Asian or Pacific Islander	0.6	1.3	0.6	1.0	0.6	1.2
American Indian or Alaskan Native	0.4	0.7	0.3	0.6	0.3	0.6
Other	0.8	1.0	0.6	0.7	0.7	0.8
Age of Borrower						
Under 30	14.5	13.8	14.2	13.7	14.4	13.7
30-39	33.9	32.3	34.1	31.9	34.0	32.1
40 and Over	51.6	53.9	51.7	54.4	51.6	54.2
Gender of Borrower(s)						
All Male	15.7	15.6	15.0	14.9	15.4	15.3
All Female	12.4	12.5	11.9	12.0	12.2	12.3
Male and Female	71.9	71.8	73.1	73.2	72.4	72.4

Source: HUD analysis of GSEs' loan-level data on mortgages on owner-occupied one-unit properties. In computing the percentages, missing data are excluded.

The second concern is whether defining underserved areas in terms of an entire county gives the GSEs an incentive to purchase mortgages in the ''better off'' tracts. Based on an analysis of the GSEs' mortgage purchases by tract median income, it is unclear if the broad nature of the county definition has an impact on the GSEs' purchasing behavior at the tract level. For example, even though the GSEs purchase a larger percentage of mortgages in high-minority and low-income tracts in underserved than in served counties, they purchase nearly the same percentage of mortgages in both underserved and served counties in high-income tracts.

In underserved areas, the GSEs are more likely to purchase mortgages in low-income and high-minority census tracts than in served counties. The GSEs are more than twice as likely to purchase mortgages in tracts with median incomes at or below 80 percent of AMI in underserved counties than in served counties (15.7 percent vs. 5.1 percent). For census tracts with percent minority above 30 percent, 3.3 percent of the GSEs' purchases in served counties are in these high-minority tracts compared to 23.9 percent in underserved counties. These results are expected since underserved counties are made up of a greater number of low-income and high-minority census tracts than are served counties.

While the GSEs purchase nearly the same percentages of mortgages in the ''better off'' tracts in underserved counties and served counties, when compared to the percentage of owner-occupied units in these areas, two points stand out. First, as the ratio of tract income to area median income increases, so does the volume of GSE home mortgage purchases relative to the number of owner-occupied units in the tract. Second, this tendency is more pronounced in underserved than in served counties.

Tables B.9 and B.10 provide distributions of owner-occupied units across tracts by tract income ratio, as reported in the 1990 Census, and distributions of 1997 GSE home mortgage purchases by tract income ratio. The two tables provide data for underserved and for served counties, respectively. In underserved counties, 1.1 percent of GSE 1997 purchases and 2.7 percent of owner-occupied units were in tracts with median income at or below 60 percent of area median income. The ratio of these two shares is 0.41 (1.1 divided by 2.7). As the ratio of tract income to area median income increases, the ratio between the two shares increases (see Table B.9). This same result is found for served counties, but the ratios are both larger for low tract income ratios and smaller for high tract income ratios (Compare Table B.10 with Table B.9).

Table B.9

Distributions of GSE Purchases and Housing Units
By Tract Income Ratio
For Non-Metropolitan Underserved Counties

Tract Income Ratio[1]	1997 Distribution of GSE Home Mortgage Purchases	1990 Distribution of All Owner-Occupied Units	Ratio of Shares
0 ≤ 60%	1.1 %	2.7 %	0.41
60 ≤ 80%	14.6	18.4	0.79
80 ≤ 95%	35.6	39.0	0.91
95 ≤ 100%	12.0	12.6	0.95
100 ≤ 120%	24.5	21.2	1.16
> 120%	12.2	6.0	2.03
Total	100.0 %	100.0 %	

[1] Tract median income relative to area median income (i.e., the median income for the county or the nonmetropolitan portion of the State, whichever is greater.)

Table B.10

Distributions of GSE Purchases and Housing Units
By Tract Income Ratio
For Non-Metropolitan Served Counties

Tract Income Ratio[1]	1997 Distribution of GSE Home Mortgage Purchases	1990 Distribution of All Owner-Occupied Units	Ratio of Shares
0 ≤ 60%	0.4 %	0.6 %	0.67
60 ≤ 80%	4.7	6.0	0.78
80 ≤ 95%	22.4	26.4	0.85
95 ≤ 100%	14.4	15.8	0.91
100 ≤ 120%	43.6	41.4	1.05
> 120%	14.5	9.8	1.48
Total	100.0 %	100.0 %	

[1] Tract median income relative to area median income (i.e., the median income for the county or the nonmetropolitan portion of the State, whichever is greater.)

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The fact that the ratio of shares for higher-income tracts is larger in underserved counties than in served counties suggests that the GSEs are purchasing a greater percentage of mortgages in ''better off'' tracts as a result of the county-based geographically targeted goal. For example, in tracts where the median income is above 120 percent of the area median, the ratio of the GSEs' mortgage purchase share to the owner-occupied units share is 2.03 for underserved counties, compared to 1.48 for served counties. Conversely, in tracts where the median income is at or below 60 percent of the area median, the ratio of the GSEs' mortgage purchase share to the owner-occupied units share is 0.41, compared to 0.67 for served counties.

There are similarities and differences between the types of loans that Fannie Mae and Freddie Mac purchase in served and underserved counties. The GSEs are similar in that their mortgage purchases in underserved counties do not have lower downpayments than in served counties. In both served and underserved counties, approximately 28 percent of the GSEs' 1997 mortgage purchases have loan-to-value ratios above 80 percent. The GSEs differ in their mortgage purchases of refinanced and seasoned loans. Fannie Mae is more likely to purchase more seasoned mortgages in underserved than in served counties; Freddie Mac is more likely to purchase more refinanced mortgages in underserved than in served counties.

E. Factor 4: Size of the Conventional Conforming Mortgage Market for Underserved Areas

HUD estimates that underserved areas account for 29–32 percent of the conventional conforming mortgage market. The analysis underlying this estimate is detailed in Appendix D.

F. Factor 5: Ability to Lead the Industry

This factor is the same as the fifth factor considered under the goal for mortgage purchases on housing for low- and moderate-income families. Accordingly, see Section G of Appendix A for a discussion of this factor.

G. Factor 6: Need to Maintain the Sound Financial Condition of the Enterprises.

HUD has undertaken a separate, detailed economic analysis of this proposed rule, which includes consideration of (a) the financial returns that the GSEs earn on loans in underserved areas and (b) the financial safety and soundness implications of the housing goals. Based on this economic analysis and discussions with the Office of Federal Housing Enterprise Oversight, HUD concludes that the proposed goals raise minimal, if any, safety and soundness concerns.

H. Determination of the Geographically-Targeted Areas Housing Goals

The annual goal for each GSE's purchases of mortgages financing housing for properties located in geographically-targeted areas (central cities, rural areas, and other underserved areas) is established at 29 percent of eligible units financed in calendar year 2000 and 31 percent of eligible units financed in calendar year 2001. The year 2001 goal will remain in effect through 2003 and thereafter, unless changed by the Secretary prior to that time. The goal represents an increase over the 1996 goal of 21 percent and the 1997–99 goal of 24 percent. However, it is commensurate with the market share estimates of 29–32 percent, presented in Appendix D.

This section summarizes the Secretary's consideration of the six statutory factors that led to the choice of these goals. It discusses the Secretary's rationale for defining these geographically-targeted areas and it compares the characteristics of such areas and untargeted areas. The section draws heavily from earlier sections which have reported findings from HUD's analyses of mortgage credit needs as well as findings from other research studies investigating access to mortgage credit.

1. Credit Needs in Metropolitan Areas

HUD's analysis of HMDA data shows that mortgage credit flows in metropolitan areas are substantially lower in high-minority and low-income neighborhoods and mortgage denial rates are much higher for residents of such neighborhoods. The economics literature discusses the underlying causes of these disparities in access to mortgage credit, particularly as related to the roles of discrimination, ''redlining'' of specific neighborhoods, and the barriers posed by underwriting guidelines to potential minority and low-income borrowers. Studies reviewed in Section B of this Appendix found that the racial and income composition of neighborhoods influence mortgage access even after accounting for demand and risk factors that may influence borrowers' decisions to apply for loans and lenders' decisions to make those loans. Therefore, the Secretary concludes that high-minority and low-income neighborhoods in metropolitan areas are underserved by the mortgage system.

2. Identifying Underserved Portions of Metropolitan Areas

To identify areas underserved by the mortgage market, HUD focused on two traditional measures used in a number of studies based on HMDA data:[45] application denial rates and mortgage origination rates per 100 owner-occupied units.[46] Tables B.1 and B.2 in Section B of this Appendix presented detailed data on denial and origination rates by the racial composition and median income of census tracts for metropolitan areas.[47] Aggregating this data is useful in order to examine denial and origination rates for broader groupings of census tracts:

Minority composition	Denial rate (percent)	Orig. rate	Tract income	Denial rate (percent)	Orig. rate
0 – 30%	13.7	8.7	Less than 90%	24.0%	6.5
30 – 50%	21.3%	6.8	90–120%	15.6	8.3
50 – 100%	25.1%	5.8	Greater than 20%	9.5	9.5

Two points stand out from these data. First, high-minority census tracts have higher denial rates and lower origination rates than low-minority tracts. Specifically, tracts that are over 50 percent minority have nearly twice the denial rate and two-thirds the origination rate of tracts that are under 30 percent minority.[48] Second, census tracts with lower incomes have higher denial rates and lower origination rates than higher income tracts. Tracts with income less than or equal to 90 percent of area median income have 2.5 times the denial rate and barely two-thirds the origination rate for tracts with income over 120 percent of area median income.

In 1995, HUD's research determined that ''underserved areas'' could best be characterized in metropolitan areas as census tracts with minority population of at least 30 percent in 1990 and/or census tract median income no greater than 90 percent of area median income in 1990, excluding high-minority high-income tracts. These cutoffs produce sharp differentials in denial and origination rates between underserved areas and adequately served areas. For example, the mortgage denial rate in underserved areas (23.4 percent) was nearly twice that in

[45] HMDA provides little useful information on rural areas. Therefore, the HMDA data reported here apply only to metropolitan areas.

[46] Analysis of application rates are not reported here. Although application rates are sometimes used as a measure of mortgage demand, they provide no additional information beyond that provided by looking at both denial and origination rates. The patterns observed for application rates are still very similar to those observed for origination rates.

[47] As shown in Table B.1, no sharp breaks occur in the denial and origination rates across the minority and income deciles—mostly, the increments are somewhat similar as one moves across the various deciles that account for the major portions of mortgage activity.

[48] The differentials in denial rates are due, in part, to differing risk characteristics of the prospective borrowers in different areas. However, use of denial rates is supported by the findings in the Boston Fed study which found that denial rate differentials persist, even after controlling for risk of the borrower. See Section B for a review of that study.

adequately served areas (12.2 percent) in 1997.

These minority population and income thresholds apply in the suburbs as well as in OMB-defined central cities. HUD's research has found that the average denial rate in underserved suburban areas is almost twice that in adequately served areas in the suburbs. (See Figure B.1 in Section B of this Appendix.) Thus HUD uses the same definition of underserved areas throughout metropolitan areas—there is no need to define such areas differently in central cities and in the suburbs. And HUD's definition, which covers 57 percent of the central city population and 33 percent of the suburban population, is clearly preferable to a definition which would count 100 percent of central city residents and zero percent of suburban residents as living in underserved areas.

This definition of metropolitan underserved areas includes 21,586 of the 46,904 census tracts in metropolitan areas, covering 44 percent of the metropolitan population. It includes 73 percent of the population living in poverty in metropolitan areas. The unemployment rate in underserved areas is more than twice that in served areas, and rental units comprise 52.4 percent of total units in underserved tracts, versus 28.6 percent of total units in served tracts. As shown in Table B.11, this definition covers most of the population in the nation's most distressed central cities: Newark (99 percent), Detroit (96 percent), Hartford (97 percent), and Cleveland (90 percent). The nation's five largest cities also contain large concentrations of their population in underserved areas: New York (62 percent), Los Angeles (69 percent), Chicago (77 percent), Houston (67 percent), and Philadelphia (80 percent).

Table B.11

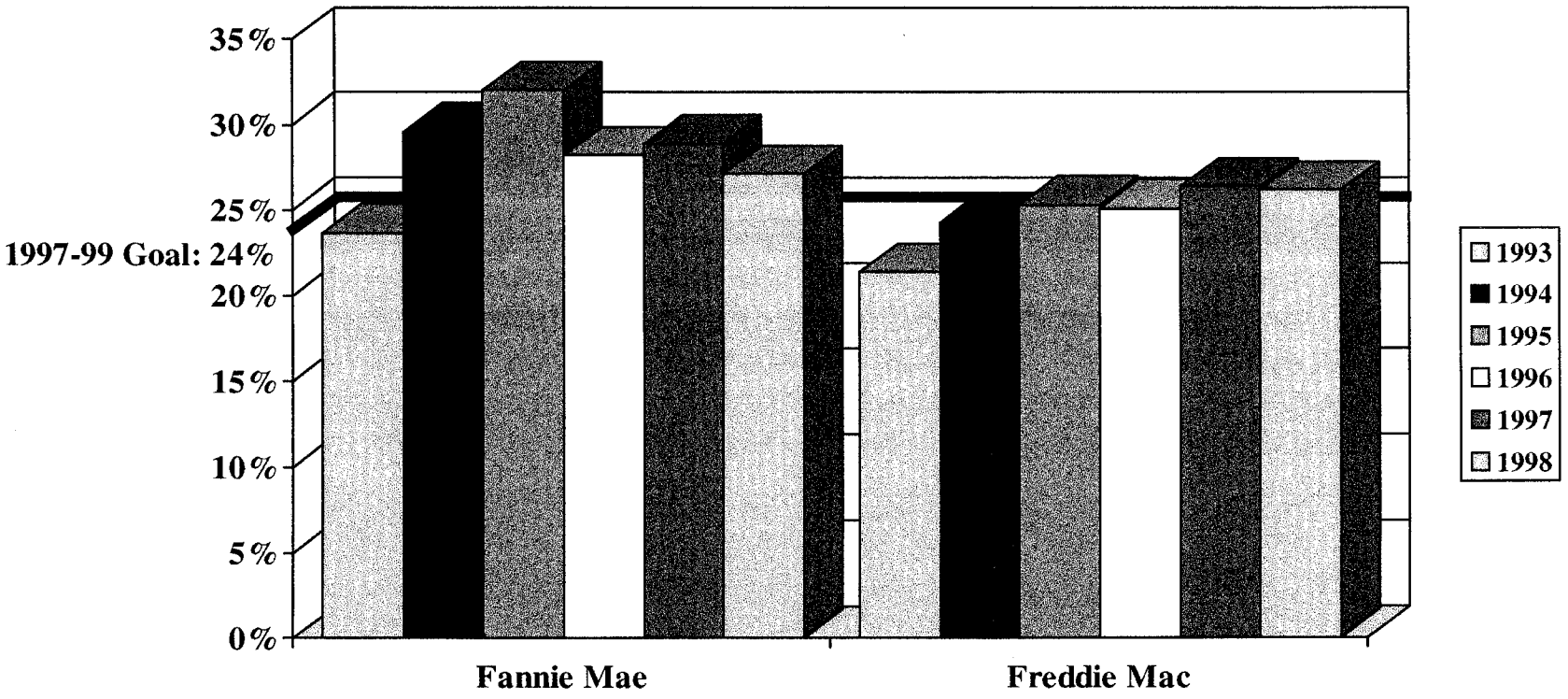
Needy Areas in Central Cities Would be Covered

Large Cities with High Concentrations of Tracts Included in the Geographically Targeted Goal (Percent of Population)	
Newark	99%
Hartford	97%
Gary	96%
Detroit	96%
Jersey City	92%
Miami	91%
Baltimore	90%
Cleveland	90%
St. Louis	85%

Five Largest Cities	
New York	62%
Los Angeles	69%
Chicago	77%
Houston	67%
Philadelphia	80%

Central Cities with Small Concentrations			
Large Cities		Small Cities	
Raleigh	33%	Appleton, WI	6%
Tulsa	38%	Cedar Falls, IA	8%
Nashville-Davidson	41%	Scottsdale, AZ	11%
Oklahoma City	42%	Naples, FL	13%
Wichita	43%	Orem, UT	14%
Colorado Springs	44%	Wheeling, WV	20%
Columbus	46%	Salem, OR	19%
Phoenix	51%	Elkhart, IN	20%

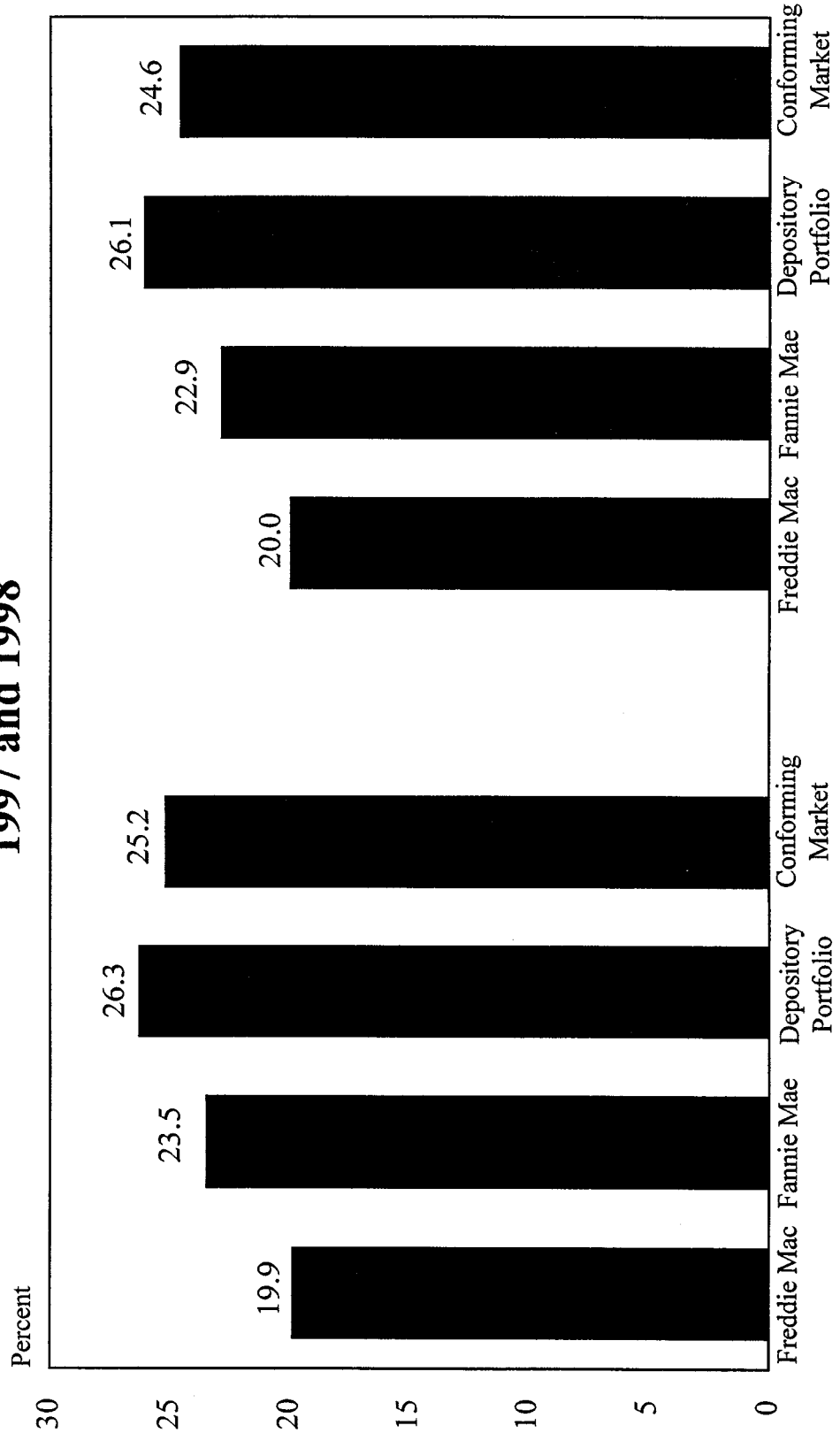
Figure B.2
Geographically Targeted Mortgage Purchases



Geographically Targeted Goal is 24% of units financed for 1997-99 (21% for 1996).

Source: HUD analysis of GSEs' loan-level data.

Figure B.3
The Share Of GSE And Conventional Conforming Mortgages in Census Tracts Included in the Geographically Targeted Goal, 1997 and 1998



Source: Conforming market and depository data are from 1997 and 1998 HMDA; GSE data are from loan-level data reported to HUD. Data are for single-family home purchase loans in metropolitan areas. See Table A.4a for further explanation.

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Identifying Underserved Portions of Nonmetropolitan Areas

Recognizing the difficulty of defining rural underserved areas and the need to encourage GSE activity in such areas, HUD has chosen a rather broad, county-based definition of underservedness in rural areas. Specifically, a nonmetropolitan county is underserved if in 1990 (1) county median family income was less than or equal to 95 percent of the greater of state or national nonmetropolitan income or (2) county median family income was less than or equal to 120 percent of state nonmetropolitan income and county minority population was at least 30 percent of total county population. This definition includes 1,511 of the 2,305 counties in nonmetropolitan areas and covers 54 percent of the nonmetropolitan population. The definition does target the most disadvantaged rural counties—it includes in underserved areas 67 percent of the nonmetropolitan poor and 75 percent of nonmetropolitan minorities. The average poverty rate in underserved counties in 1990 was 21 percent, significantly greater than the 12 percent poverty rate in counties designated as adequately served. The definition also includes 84 percent of the population that resides in remote counties that are not adjacent to metropolitan areas and have fewer than 2,500 residents in towns.

4. Past Performance of the GSEs

The GSEs' performance on the geographically-targeted goal has improved significantly in recent years, as shown in Figure B.2. Fannie Mae's performance, as measured by HUD, increased sharply from 23.6 percent in 1993 to 31.9 percent in 1995, dropped to 28.1 percent in 1996, and rose to 28.8 percent in 1997, and then dropped to 27.0 percent in 1998. Freddie Mac's performance, as measured by HUD, rose from 21.8 percent in 1993 to 26.4 percent in 1995, followed by 25.0 percent in 1996, 26.3 percent in 1997, and 26.1 percent in 1998.

Both GSEs have improved their performance in underserved areas over the past six years but, on average, they continue to lag the conforming primary market in providing single-family home loans to distressed neighborhoods. As discussed in Section D, the GSEs show different patterns of lending—Freddie Mac is less likely than Fannie Mae to purchase mortgages on properties in low-income and high-minority neighborhoods. During the 1996–98 period, Freddie Mac lagged Fannie Mae, portfolio lenders, and the overall conforming market in providing funds to underserved neighborhoods. As shown in Figure B.3, underserved areas accounted for 20.0 percent of Freddie Mac's 1998 purchases of home loans, compared with 22.9 percent of Fannie Mae's purchases, 26.1 percent of home loans retained in depositories' portfolios, and 24.6 percent of the overall conforming market. Freddie Mac has not made any progress since 1992 in reducing the gap between its performance and that of the conventional conforming home purchase market. Fannie Mae, on the other hand, has improved its funding in underserved areas and has closed the gap between its performance and the single-family primary market in funding low-income and high-minority neighborhoods.[49]

HUD also conducted an analysis of the share of the overall (single-family and multifamily) conventional conforming mortgage market accounted for by the GSEs. The GSEs' purchases represented 39 percent of total dwelling units financed during 1997 but they represented only 33 percent of the dwelling units financed in underserved neighborhoods. In other words, the GSEs account for only one-third of the single-family and multifamily units financed in underserved areas. This suggests that there is room for the GSEs to increase their purchases in underserved neighborhoods.

5. Size of the Mortgage Market for Geographically-Targeted Areas

As detailed in Appendix D, the market for mortgages in geographically-targeted areas accounts for 29 to 32 percent of dwelling units financed by conventional conforming mortgages. In estimating the size of the market, HUD used alternative assumptions about future economic and market conditions that were less favorable than those that existed over the last five years. HUD is well aware of the volatility of mortgage markets and the possible impacts on the GSEs' ability to meet the housing goals. Should conditions change such that the goals are no longer reasonable or feasible, the Secretary has the authority to revise the goals.

6. The Geographically-Targeted Areas Housing Goal for 2000–03

There are several reasons that the Secretary is increasing the Geographically Targeted Areas Goal. *First,* the present 24 percent goal level for 1997–99 and the GSEs' recent performance are below the estimated 29–32 percent of the primary mortgage market accounted for by units in properties located in geographically-targeted areas. Raising the goal reflects the Secretary's concern that the GSEs close the remaining gap between their performance and that of the primary mortgage market.

Second, the single-family-owner mortgage market in underserved areas has demonstrated remarkable strength over the past few years relative to the preceding period. This market had only recently begun to grow in 1993 and 1994, the latest period for which data was available when the 1996–99 goals were established in December 1995. But the historically high undeserved areas share of the primary single-family mortgage market attained in 1994 has been maintained over the 1995–98 period. The three-year average of the underserved areas share of the single-family-owner mortgage market in metropolitan areas was 22.2 percent for 1992–94, but 25.1 percent for 1995–98 and 24.1 percent for the 1992–98 period as a whole.

Third, as discussed in detail in Appendix A, there are several market segments that would benefit from a greater secondary market role by the GSEs; many of these market segments are concentrated in underserved areas. For example, one such area is single-family rental dwellings. These properties, containing 1–4 rental units, are an important source of housing for families in low-income and high-minority neighborhoods. However, the GSEs' purchases have accounted for only 13 percent of the single-family rental units financed in underserved areas during 1997. The Secretary believes that the GSEs can do more to play a leadership role in providing financing for such properties. Examples of other market segments in need of an enhanced GSE role include small multifamily properties, rehabilitation loans, seasoned CRA loans, and manufactured housing. Additional efforts by the GSEs in these markets would benefit families living in underserved areas.

Finally, a wide variety of quantitative and qualitative indicators indicate that the GSEs' have the financial strength to improve their affordable lending performance. For example, combined net income has risen steadily over the last decade, from $677 million in 1987 to $4.5 billion in 1997, an average annual growth rate of 21 percent per year. This financial strength provides the GSEs with the resources to lead the industry in supporting mortgage lending for properties located in geographically-targeted areas.

Summary. Figure A.4 of Appendix A summarizes many of the points made in this section regarding opportunities for Fannie Mae and Freddie Mac to improve their overall performance on the Geographically-Targeted Goal. The GSEs' purchases have provided financing for 2,893,046 dwelling units, which represented 39 percent of the 7,443,736 single-family and multifamily units that were financed in the conventional conforming market during 1997. However, in the underserved areas part of the market, the 795,981 units that were financed by GSE purchases represented only 33 percent of the 2,408,393 dwelling units that were financed in the market. Thus, there appears to ample room for the GSEs to increase their purchases in underserved areas. It is hoped that expression of concern in the current rulemaking will foster additional effort by both GSEs to increase their purchases in underserved areas.

7. Conclusions

Having considered the projected mortgage market serving geographically-targeted areas, economic, housing and demographic conditions for 2000–03, and the GSEs' recent performance in purchasing mortgages on properties in geographically-targeted areas, the Secretary has determined that the annual goal of 29 percent in calendar year 2000 and 31 percent in calendar year 2001 and the years following is feasible. Moreover, the Secretary has considered the GSEs' ability to lead the industry as well as the GSEs' financial condition. The Secretary has determined that these goal levels are necessary and appropriate.

[49] Although this goal is targeted to lower-income and high minority areas, it does not mean that GSE purchase activity in underserved areas derives totally from lower income or minority families. In 1997, above-median income households accounted for 37 percent of the mortgages that the GSEs purchased in underserved areas. This suggests that these areas are quite diverse.

Appendix C—Departmental Considerations To Establish the Special Affordable Housing Goal

A. Introduction

1. Establishment of the Goal

The Federal Housing Enterprises Financial Safety and Soundness Act of 1992 (FHEFSSA) requires the Secretary to establish a special annual goal designed to adjust the purchase by each GSE of mortgages on rental and owner-occupied housing to meet the unaddressed needs of, and affordable to, low-income families in low-income areas and very-low-income families (the Special Affordable Housing Goal).

In establishing the Special Affordable Housing Goal, FHEFSSA requires the Secretary to consider:

1. Data submitted to the Secretary in connection with the Special Affordable Housing Goal for previous years;

2. The performance and efforts of the GSEs toward achieving the Special Affordable Housing Goal in previous years;

3. National housing needs of targeted families;

4. The ability of the GSEs to lead the industry in making mortgage credit available for low-income and very-low-income families; and

5. The need to maintain the sound financial condition of the enterprises.

2. The Goal

The final rule provides that the Special Affordable Housing Goal is 18 percent of the total number of dwelling units financed by each GSE's mortgage purchases in 2000, and 20 percent in 2001–2003. Of the total Special Affordable Housing Goal for each year, in 2000 each GSE must purchase multifamily mortgages in an amount at least equal to 0.9 percent of the 1998 total dollar volume of mortgages purchased by the GSE, rising to 1.0 percent in 2001–2003.[1]

Approximately 23–26 percent of the conventional conforming mortgage market in 2000 would qualify under the Special Affordable Housing Goal as defined in the proposed rule, as projected by HUD.

Units that count toward the goal: Subject to further provisions specified below, units that count toward the Special Affordable Housing Goal include units occupied by low-income owners and renters in low-income areas, and very-low-income owners and renters. Other low-income rental units in multifamily properties count toward the goal where at least 20 percent of the units in the property are affordable to families whose incomes are 50 percent of area median income or less, or where at least 40 percent of the units are affordable to families whose incomes are 60 percent of area median income or less.

B. Underlying Data

In considering the factors under FHEFSSA to establish the Special Affordable Housing Goal, HUD relied upon data gathered from the American Housing Survey through 1995, the Census Bureau's 1991 Residential Finance Survey, the 1990 Census of Population and Housing, Home Mortgage Disclosure Act (HMDA) data for 1992 through 1997, and annual loan-level data from the GSEs on their mortgage purchases through 1997. Appendix D discusses in detail how these data resources were used and how the size of the conventional conforming market for this goal was estimated.

Section C discusses the factors listed above, and Section D provides the Secretary's rationale for establishing the special affordable goal.

[1] While this proposed rule specifically proposes a dollar based subgoal, the Department is considering three alternative approaches to structuring the Special Affordable multifamily subgoal—a mortgage-based subgoal, a dollar-based subgoal, and a unit-based subgoal. These alternative approaches are described in the Preamble and in Section D of this Appendix.

Consideration of the Factors

1 and 2. Data submitted to the Secretary in connection with the Special Affordable Housing Goal for previous years, and the performance and efforts of the enterprises toward achieving the Special Affordable Housing Goal in previous years.

The discussions of these two factors have been combined because they overlap to a significant degree.

a. GSE Performance Relative to the 1996–98 Goals

This section discusses each GSE's performance under the Special Affordable Housing Goal over the 1993–98 period. The data presented here are ''official results''—i.e., they are based on HUD's in-depth analysis of the loan-level data submitted annually to the Department and the counting provisions contained in HUD's regulations in 24 CFR part 81, subpart B. As explained below, in some cases these ''official results'' differ from goal performance reported to the Department by the GSEs in their Annual Housing Activities Reports.

HUD's goals specified that in 1996 at least 12 percent of the number of units eligible to count toward the Special Affordable goal should qualify as Special Affordable, and at least 14 percent annually beginning in 1997. The actual performance in 1996 through 1998, based on HUD analysis of loan-level data submitted by the GSEs, is shown in Table C.1 and Figure C.1. Fannie Mae surpassed the goal by 3.4 percentage points and 3.0 percentage points, respectively, in 1996 and 1997, while Freddie Mac surpassed the goal by 2.0 and 1.2 percentage points. In 1998, Fannie Mae surpassed the goal by 0.3 percentage points while Freddie Mac surpassed the goal by 1.9 percentage points (Table C.1).

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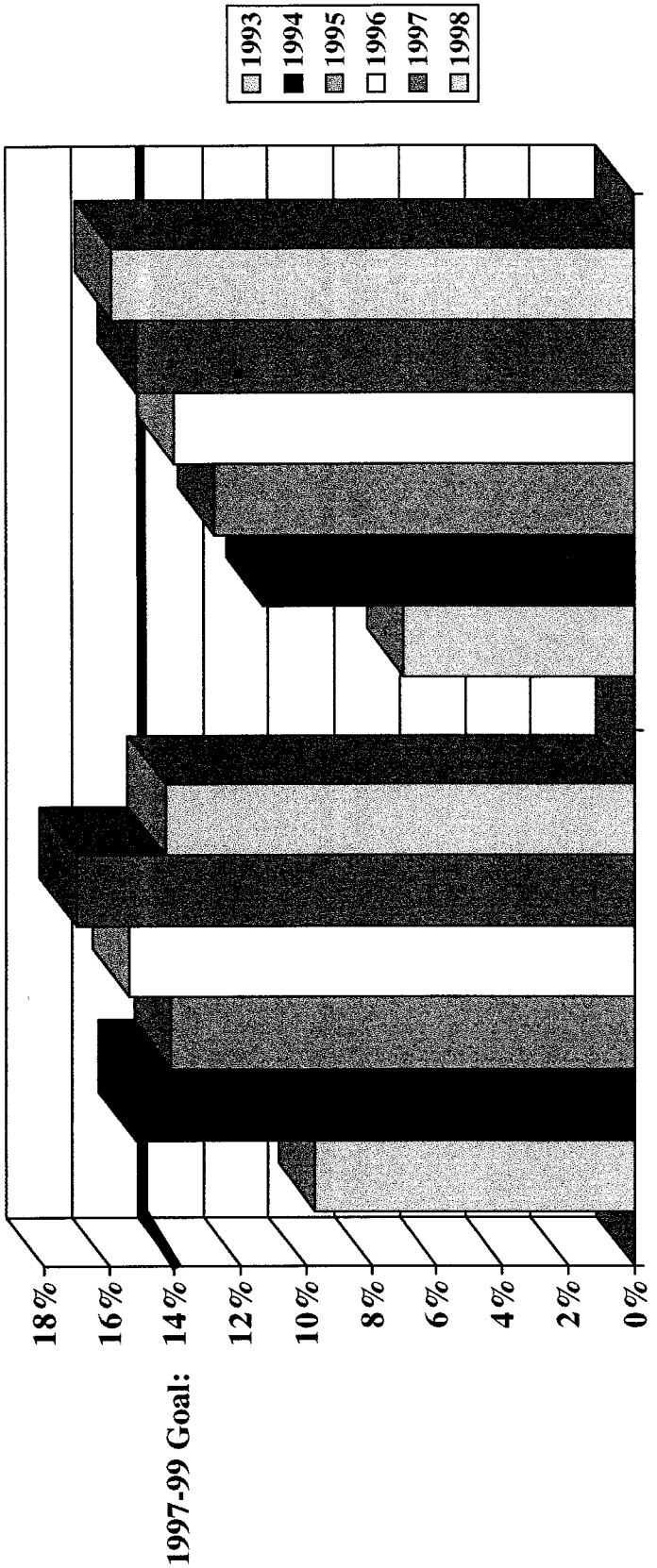
Table C.1

GSEs' Special Affordable Purchases Based on Final Rule Goal Definitions, 1993-1998

	1993	1994	1995	1996	1997	1998
Fannie Mae:						
Units Eligible to Count Toward Goal	2,909,941	1,832,257	1,417,542	1,852,233	1,748,044	3,486,040
Special Affordable Units	282,170	279,093	199,715	285,642	296,366	499,948
Percent Special Affordable	9.7%	15.2%	14.1%	15.4%	17.0%	14.3%
Special Affordable Multifamily Purchases ($billions)	$1.64	$1.74	$1.34	$2.37	$3.19	$3.53
Freddie Mac:						
Units Eligible to Count Toward Goal	2,170,036	1,290,990	959,137	1,299,589	1,175,271	2,658,174
Special Affordable Units	152,628	146,224	122,954	181,505	178,736	422,900
Percent Special Affordable	7.0%	11.3%	12.8%	14.0%	15.2%	15.9%
Special Affordable Multifamily Purchases ($billions)	$0.14	$0.46	$0.69	$1.06	$1.21	$2.69

Figure C.1

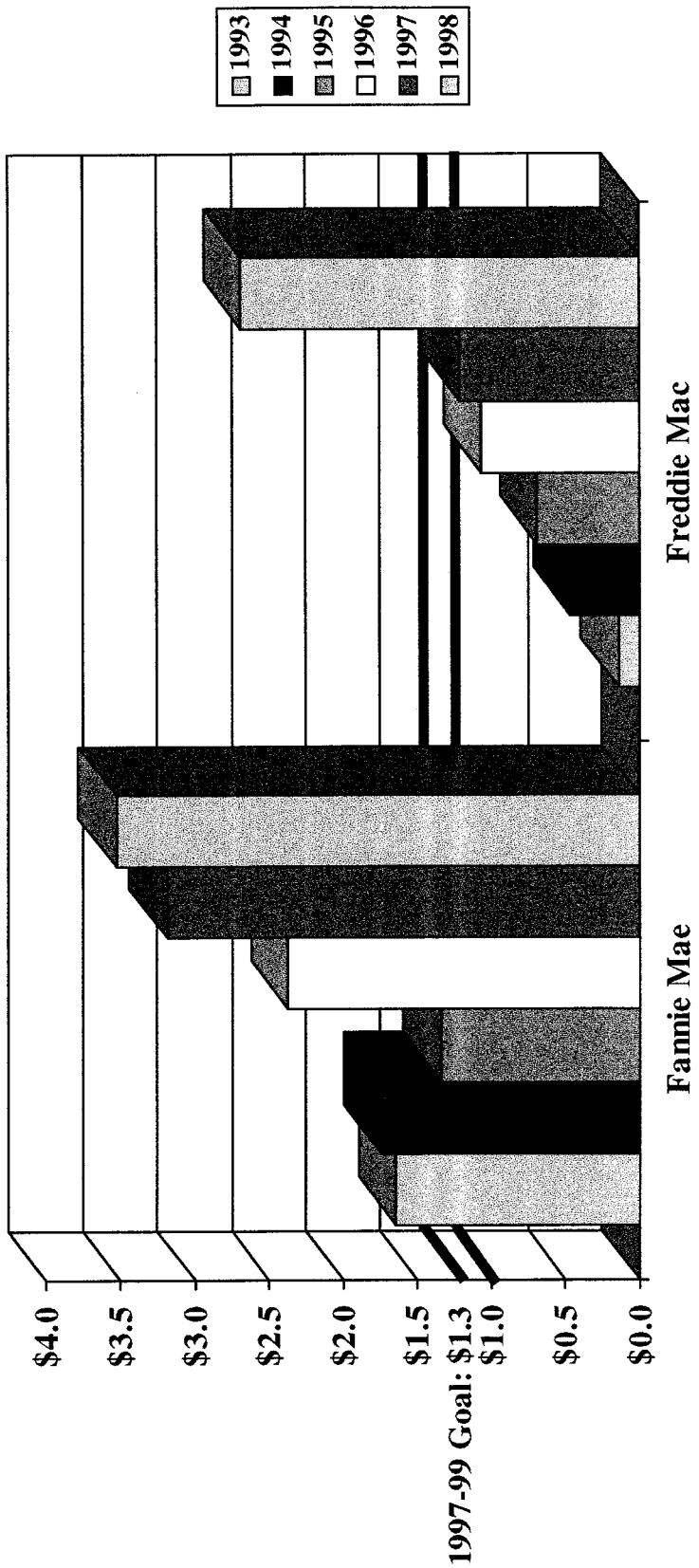
Special Affordable Mortgage Purchases



Special Affordable Goal is 14% of units financed for 1997-99 (12% for 1996).

Source: HUD analysis of GSEs' loan-level data.

Figure C.2
Multifamily Special Affordable Mortgage Purchases
(Billions of Dollars Per Year)



Multifamily Special Affordable Goals for 1996-99 are $1.29 billion per year for Fannie Mae and $988 million per year for Freddie Mac.

Source: HUD analysis of GSEs' loan-level data.

Table C.2

Fannie Mae's Special Affordable Purchases By Unit Affordability and Area Income, 1993-1997

Year of purchase and Type of unit	Very-Low Income Units in Low-Income Areas	Very-Low Income Units Outside Low-Income Areas	Other Low-Income Units in Low-Income Areas	Other Units Qualifying For Goal*	Total Units Qualifying For Goal	Percent
1993						
Single-family owner	21,731	108,354	28,351		158,436	56.1%
Single-family rental	11,474	21,022	12,082		44,578	15.8%
Multifamily	19,831	43,754	10,480	5,092	79,157	28.1%
Total	53,036	173,130	50,913	5,092	282,171	100.0%
Percent	18.8%	61.4%	18.0%	1.8%	100.0%	
1994						
Single-family owner	22,599	88,407	23,310		134,316	48.1%
Single-family rental	14,392	21,637	11,545		47,574	17.0%
Multifamily	25,712	51,173	13,572	6,746	97,203	34.8%
Total	62,703	161,217	48,427	6,746	279,093	100.0%
Percent	22.5%	57.8%	17.4%	2.4%	100.0%	
1995						
Single-family owner	20,292	68,062	18,139		106,493	53.3%
Single-family rental	8,251	11,210	5,887		25,348	12.7%
Multifamily	16,334	33,988	12,801	4,750	67,873	34.0%
Total	44,877	113,260	36,827	4,750	199,714	100.0%
Percent	22.5%	56.7%	18.4%	2.4%	100.0%	
1996						
Single-family owner	25,103	93,029	23,328		141,460	49.5%
Single-family rental	11,242	18,207	6,938		36,387	12.7%
Multifamily	23,703	59,556	15,399	9,136	107,794	37.7%
Total	60,048	170,792	45,665	9,136	285,641	100.0%
Percent	21.0%	59.8%	16.0%	3.2%	100.0%	
1997						
Single-family owner	23,909	91,400	20,825		136,134	45.9%
Single-family rental	9,169	15,290	5,399		29,858	10.1%
Multifamily	27,522	80,069	13,294	9,488	130,373	44.0%
Total	60,600	186,759	39,518	9,488	296,365	100.0%
Percent	20.4%	63.0%	13.3%	3.2%	100.0%	

* Low-income rental units in multifamily properties where at least 20 percent of the units are affordable to families whose incomes are 50 percent of area median income or less or where at least 40 percent of the units are affordable to families whose incomes are 60 percent of area median income or less, which do not otherwise qualify under the goal.

Table C.3

Freddie Mac's Special Affordable Purchases By Unit Affordability and Area Income, 1993-1997

Year of purchase and Type of unit	Very-Low Income Units in Low-Income Areas	Very-Low Income Units Outside Low-Income Areas	Other Low-Income Units in Low-Income Areas	Other Units Qualifying For Goal*	Total Units Qualifying For Goal	Percent
1993						
Single-family owner	14,689	79,181	20,935		114,805	75.2%
Single-family rental	7,426	13,612	8,365		29,403	19.3%
Multifamily	3,432	4,237	577	181	8,427	5.5%
Total	25,547	97,030	29,877	181	152,635	100.0%
Percent	16.7%	63.6%	19.6%	0.1%	100.0%	
1994						
Single-family owner	13,012	61,986	15,509		90,507	55.9%
Single-family rental	16,851	21,047	6,071		43,969	27.2%
Multifamily	12,550	11,546	2,124	1,216	27,436	16.9%
Total	42,413	94,579	23,704	1,216	161,912	100.0%
Percent	26.2%	58.4%	14.6%	0.8%	100.0%	
1995						
Single-family owner	10,801	45,782	11,138		67,721	55.1%
Single-family rental	6,018	10,705	4,697		21,420	17.4%
Multifamily	9,818	15,352	5,199	3,444	33,813	27.5%
Total	26,637	71,839	21,034	3,444	122,954	100.0%
Percent	21.7%	58.4%	17.1%	2.8%	100.0%	
1996						
Single-family owner	15,330	70,731	16,018		102,080	56.2%
Single-family rental	7,539	14,339	4,178		26,056	14.4%
Multifamily	12,634	28,301	8,760	3,675	53,370	29.4%
Total	35,503	113,371	28,956	3,675	181,506	100.0%
Percent	19.6%	62.5%	16.0%	2.0%	100.0%	
1997						
Single-family owner	15,742	66,656	15,449		97,847	54.7%
Single-family rental	7,469	11,612	5,552		24,633	13.8%
Multifamily	16,131	28,789	8,133	3,203	56,256	31.5%
Total	39,342	107,057	29,134	3,203	178,736	100.0%
Percent	22.0%	59.9%	16.3%	1.8%	100.0%	

* Low-income rental units in multifamily properties where at least 20 percent of the units are affordable to families whose incomes are 50 percent of area median income or less or where at least 40 percent of the units are affordable to families whose incomes are 60 percent of area median income or less, which do not otherwise qualify under the goal.

Table C.1 also includes, for comparison purposes, comparable figures for 1993, 1994, and 1995, calculated according to the counting conventions of the 1995 Final Rule that became applicable in 1996. Each GSEs' percentages in 1996, 1997, and 1998 exceeded their percentages in any of the three preceding years.

The Fannie Mae figures presented above are smaller than the corresponding figures presented by Fannie Mae in its Annual Housing Activity Reports to HUD by approximately 2 percentage points in both 1996 and 1997 and 1.3 percentage points in 1998. The difference largely reflects HUD-Fannie Mae differences in application of counting rules relating to counting of seasoned loans for purposes of this goal. In particular, the tabulations reflect inclusion of seasoned loan purchases in the denominator in calculating performance under the Special Affordable goal, as discussed in Preamble section II(B)(6)(c) on the Seasoned Mortgage Loan Purchases ''Recycling'' Requirement. Freddie Mac's Annual Housing Activity Report figures for this goal differ from the figures presented above by 0.1 percentage point, reflecting minor differences in application of counting rules.

Since 1996 each GSE has been subject to an annual subgoal for multifamily Special Affordable mortgage purchases, established as 0.8 percent of the dollar volume of single-family and multifamily mortgages purchased by the respective GSE in 1994. Fannie Mae's subgoal was $1.29 billion and Freddie Mac's subgoal was $988 million for each year. Fannie Mae surpassed the subgoal by $1.08 billion, $1.90 billion, and $2.24 billion in 1996, 1997, and 1998, respectively, while Freddie Mac surpassed the subgoal by $18 million, $220 million, and $1.70 billion. Table C.1 includes these figures, and they are depicted graphically in Figure C.2.

b. Characteristics of Special Affordable Purchases

The following analysis presents information on the composition of the GSEs' Special Affordable purchases according to area income, unit affordability, tenure of unit and property type (single- or multifamily).

Increased reliance on multifamily housing to meet goal. Tables C.2 and C.3 show that both GSEs have increasingly relied on multifamily housing units to meet the special affordable goal since 1993. Fannie Mae's multifamily purchases represented 44 percent of all purchases qualifying for the goal in 1997, compared with 28.1 percent in 1993. Freddie Mac's multifamily purchases represented 31.5 percent of all purchases qualifying for the goal in 1997, compared to 5.5 percent in 1993. The trends for both GSEs were steadily upward throughout the five-year period.

The other two housing categories—single-family owner and single-family rental—both exhibited downward trends for both GSEs. In 1997 Fannie Mae's single-family owner units qualifying for the goal represented 45.9 percent of all qualifying units, and Fannie Mae's single-family rental units were 10.0 percent of all qualifying units. Freddie Mac's single-family owner units qualifying for the goal represented 54.7 percent of all qualifying units, and Freddie Mac's single-family rental units were 13.8 percent of all qualifying units.

Reliance on household relative to area characteristics to meet goal. Tables C.2 and C.3 also show the allocation of units qualifying for the goal as related to the family income and area median income criteria in the goal definition. Very-low-income families (shown in the two leftmost columns in the tables) accounted for 83.4 percent of Fannie Mae's units qualifying under the goal in 1997, compared to 80.2 percent in 1993. For Freddie Mac, very-low-income families accounted for 81.0 percent of units qualifying under the goal in 1997 and 80.3 percent in 1993. In contrast, mortgage purchases from low-income areas (shown in the first and third columns in the tables) accounted for 33.7 percent of Fannie Mae's units qualifying under the goal in 1997, compared to 36.8 percent in 1993. The corresponding percentages for Freddie Mac were 38.3 percent in 1997 and 36.3 percent in 1993. Thus given the definition of special affordable housing in terms of household and area income characteristics, both GSEs have consistently relied substantially more on low-income characteristics of households than low-income characteristics of census tracts to meet this goal.

c. GSEs' Performance Relative to Market

Section E in Appendix A uses HMDA data with GSE loan-level data for home purchase mortgages on single-family owner-occupied properties in metropolitan areas to compare the GSEs' performance in special affordable lending to the performance of depositories and other lenders in the conventional conforming market. The main findings are: (a) both GSEs lag depositories and the overall market in providing mortgage funds for very low-income and other special affordable borrowers; and (b) the performance of Freddie Mac was particularly weak compared to Fannie Mae, the depositories, and the overall market. For example, between 1996 and 1998, special affordable borrowers accounted for 9.8 percent of the home loans purchased by Freddie Mac, 11.9 percent of Fannie Mae's purchases, 16.7 percent of home loans originated and retained by depositories, and 15.3 percent of all home loans originated in the conventional conforming market (see Table A.3 in Appendix A). While Freddie Mac has improved its performance, it has not closed the gap between its performance and that of the overall market. In 1992, special affordable loans accounted for 6.5 percent of Freddie Mac's purchases and 10.4 percent of market originations, for a ''Freddie-Mac-to-market'' ratio of 0.63. By 1998, that ratio had increased only to 0.73 (11.3 percent versus 15.5 percent). Thus, there is room for Freddie Mac to improve its purchases of home loans that qualify for the special affordable goals.

Section G in Appendix A discusses the role of the GSEs both in the overall special affordable market and in the different segments (single-family owner, single-family rental, and multifamily rental) of the special affordable market. The GSEs' special affordable purchases have accounted for 24 percent of all special affordable owner and rental units that were financed in the conventional conforming market during 1997. The GSEs' 24-percent share of the special affordable market was approximately three-fifths of their 39-percent share of the overall market. Even in the owner market, where the GSEs account for 50 percent of the market, their share of the special affordable market was only 35 percent. This analysis suggests that the GSEs are not leading the single-family market in purchasing loans that qualify for the Special Affordable Goal. There is room for the GSEs to improve their performance in purchasing affordable loans at the lower-income end of the market.

3. National Housing Needs of Low-Income Families in Low-Income Areas and Very-Low-Income Families

This discussion concentrates on very-low-income families with the greatest needs. It complements Section C of Appendix A, which presents detailed analyses of housing problems and demographic trends for lower-income families which are relevant to the issue addressed in this part of Appendix C.

Data from the 1995 American Housing Survey demonstrate that housing problems and needs for affordable housing continue to be more pressing in the lowest-income categories than among moderate-income families, as established in HUD's analysis for the 1995 Final Rule. Table C.4 displays figures on several types of housing problems—high housing costs relative to income, physical housing defects, and crowding—for both owners and renters. Figures are presented for households experiencing multiple (two or more) of these problems as well as households experiencing a severe degree of either cost burden or physical problems. Housing problems in 1995 were much more frequent for the lowest-income groups.[2] Incidence of problems is shown for households in the income range covered by the special affordable goal, as well as for higher income households.

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[2] Tabulations of the 1995 American Housing Survey by HUD's Office of Policy Development and Research. The results in the table categorize renters reporting housing assistance as having no housing problems.

Table C.4

Incidence of Housing Problems by Household Income, 1995

	Household Income as Percent of Area Median Income			
	0-60%	61-80%	81-100%	> 100%
Renter Households (Thousands)				
Total	17,428	4,579	3,896	8,246
Rent Burden > 50% of Income	6,056	100	25	5
31-50%	5,385	1,299	482	219
Severely Inadequate Housing	587	60	68	134
Moderately Inadequate	1,415	290	197	376
Crowded	1,282	159	99	133
Multiple Problems*	2,022	75	42	34
Priority Problems**	5,492	160	94	139
As Percent of Total				
Rent Burden > 50% of Income	34.7%	2.2%	0.6%	0.1%
31-50%	30.9%	28.4%	12.4%	2.7%
Severely Inadequate Housing	3.4%	1.3%	1.7%	1.6%
Moderately Inadequate	8.1%	6.3%	5.1%	4.6%
Crowded	7.4%	3.5%	2.5%	1.6%
Multiple Problems*	11.6%	1.6%	1.1%	0.4%
Priority Problems**	31.5%	3.5%	2.4%	1.7%
Owner Households (Thousands)				
Total	19,366	7,758	6,492	29,927
Cost Burden > 50% of Income	4,177	437	147	152
31-50%	4,027	1,473	913	1,639
Severely Inadequate Housing	536	123	101	412
Moderately Inadequate	995	266	205	604
Crowded	299	157	95	329
Multiple Problems*	753	130	79	106
Priority Problems**	4,602	550	247	559
As Percent of Total				
Cost Burden > 50% of Income	21.6%	5.6%	2.3%	0.5%
31-50%	20.8%	19.0%	14.1%	5.5%
Severely Inadequate Housing	2.8%	1.6%	1.6%	1.4%
Moderately Inadequate	5.1%	3.4%	3.2%	2.0%
Crowded	1.5%	2.0%	1.5%	1.1%
Multiple Problems*	3.9%	1.7%	1.2%	0.4%
Priority Problems**	23.8%	7.1%	3.8%	1.9%

* Two or three of the following: housing costs >30%, severe or moderate physical problems, and overcrowding.
** Housing costs >50% of income or severely inadequate housing among unassisted households.
Note: Incomes of renter households are estimated based on rents, adjusted for number of bedrooms.

This analysis shows that priority problems of severe cost burden or severely inadequate housing are noticeably concentrated among renters and owners with incomes below 60 percent of area median income (31.5 percent of renter households and 23.8 percent of owner households). In contrast, 3.5 percent of renter households and 7.1 percent of owner households with incomes above 60 percent of area median income, up to 80 percent of area median income, had priority problems. For more than two-thirds of the very-low-income renter families with worst case problems, the only problem was affordability—they do not have problems with housing adequacy or crowding.

4. The Ability of the Enterprises to Lead The Industry in Making Mortgage Credit Available for Low-Income and Very-Low-Income Families

The discussion of the ability of Fannie Mae and Freddie Mac to lead the industry in Section C.5 of Appendix A is relevant to this factor—the GSEs' roles in the owner and rental markets, their role in establishing widely-applied underwriting standards, their role in the development of new technology for mortgage origination, their strong staff resources, and their financial strength. Additional analysis on the potential ability of the enterprises to lead the industry in the low- and very-low-income market appears below—in Section D.2 generally, and in Section D.3 with respect to multifamily housing.

5. The Need To Maintain the Sound Financial Condition of the GSEs

HUD has undertaken a separate, detailed economic analysis of this proposed rule, which includes consideration of (a) the financial returns that the GSEs earn on low- and moderate-income loans and (b) the financial safety and soundness implications of the housing goals. Based on this economic analysis and discussions with the Office of Federal Housing Enterprise Oversight, HUD concludes that the proposed goals raise minimal, if any, safety and soundness concerns.

D. Determination of the Goal

Several considerations, many of which are reviewed in Appendixes A and B and in previous sections of this Appendix, led to the determination of the Special Affordable Housing Goal.

1. Severe Housing Problems

The data presented in Section C.3 demonstrate that housing problems and needs for affordable housing are much more pressing in the lowest-income categories than among moderate-income families. The high incidence of severe problems among the lowest-income renters reflects severe shortages of units affordable to those renters. At incomes below 60 percent of area median, 34.7 percent of renters and 21.6 percent of owners pay more than 50 percent of their income for housing. In this same income range, 65.6 percent of renters and 42.4 percent of owners pay more than 30 percent of their income for housing. 31.5 percent of renters and 23.8 percent of owners exhibit ''priority problems'', meaning housing costs over 50 percent of income or severely inadequate housing.

2. GSE Performance and the Market

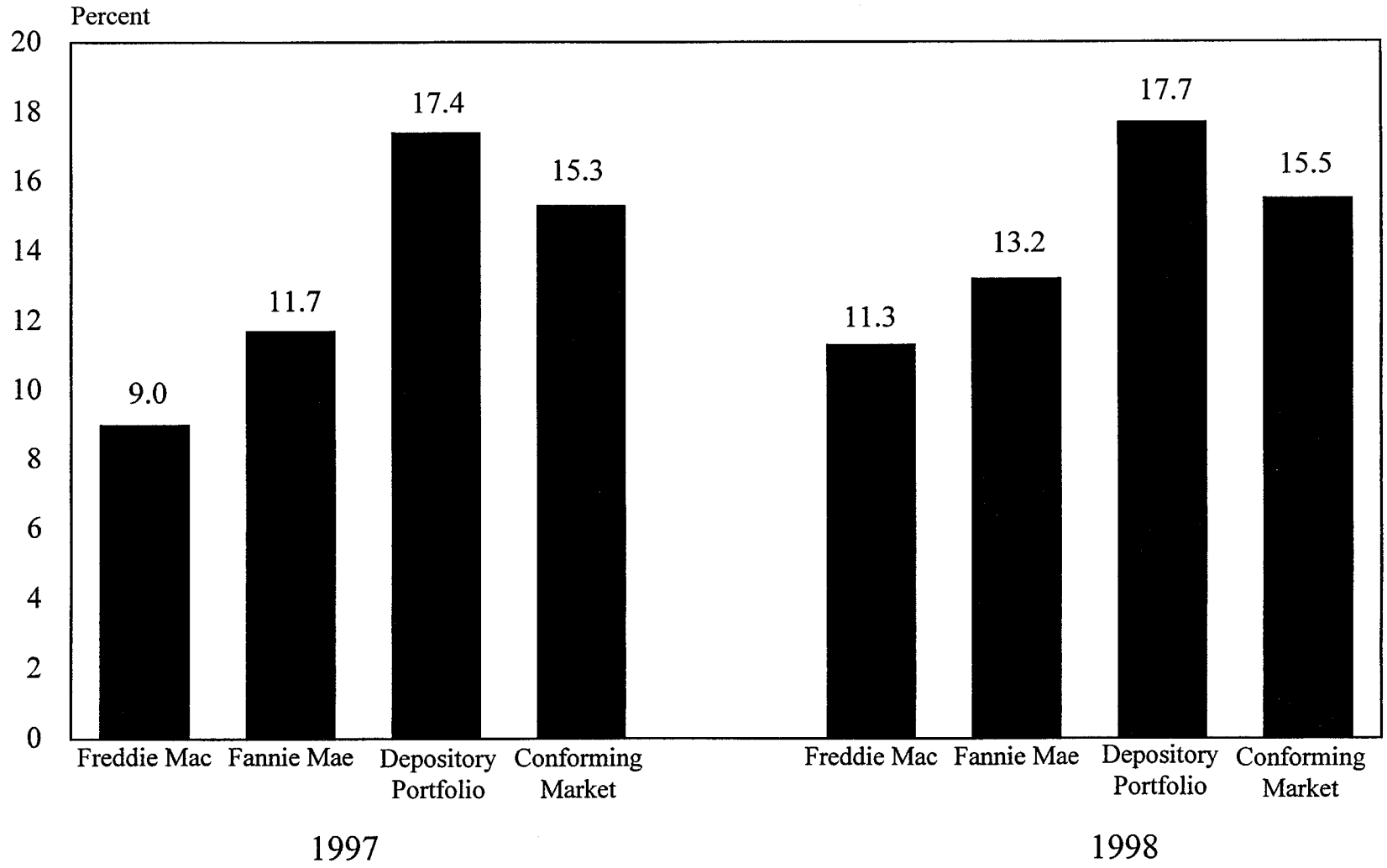
a. GSEs' Single-Family Performance

The Special Affordable Housing Goal is designed, in part, to ensure that the GSEs maintain a consistent focus on serving the very low-income portion of the housing market where housing needs are greatest. The bulk of the GSEs' low- and moderate-income mortgage purchases are for the higher-income portion of this category. The lowest-income borrowers account for a relatively small percentage of each GSE's below-median income purchases—25.9 percent of Freddie Mac's 1998 single-family low-mod owner-occupied mortgage purchases financed homes for single-family homeowners with incomes below 60 percent of area median; the corresponding share was 25.6 percent for Fannie Mae in 1998.

b. Single-Family Market Comparisons in Metropolitan Areas

Section C compared the GSEs' performance in special affordable lending to the performance of depositories and other lenders in the conventional conforming market for single-family home loans. The analysis showed that both GSEs lag depositories and the overall market in providing mortgage funds for very low-income and other special affordable borrowers; and that the performance of Freddie Mac was particularly weak compared to Fannie Mae, the depositories, and the overall market. Figure C.3 illustrates these findings. In 1998, special affordable borrowers accounted for 11.3 percent of the home loans purchased by Freddie Mac, 13.2 percent of Fannie Mae's purchases, 17.7 percent of home loans originated and retained by depositories, and 15.5 percent of all home loans originated in the conventional conforming market. Section C also notes that Freddie Mac has improved its performance since 1992, but it has not made as much progress as Fannie Mae has in closing the gap between its performance and that of the overall market. Thus, there is room for both GSEs, but particularly Freddie Mac, to improve its purchases of home loans that qualify for the special affordable goals.

Figure C.3
The Share Of GSE And Conventional Conforming Mortgages for Special Affordable Borrowers, 1997 and 1998



Source: Conforming market and depository data are from 1997 and 1998 HMDA; GSE data are from loan-level data reported to HUD. Data are for single-family home purchase loans in metropolitan areas. See Table A.4a for further explanation.

c. Overall Market Comparisons

Section C compared the GSEs' role in the overall market with their role in the special affordable market. The GSEs' purchases have provided financing for 2,893,046 dwelling units, which represented 39 percent of the 7,443,736 single-family and multifamily units that were financed in the conventional conforming market during 1997. However, in the special affordable part of the market, the 508,377 units that were financed by GSE purchases represented only 24 percent of the 2,158,750 dwelling units that were financed in the market. Thus, there appears to be ample room for the GSEs to improve their performance in the Special Affordable market.

3. Reasons for Increasing the Special Affordable Housing Goal

The reasons the Secretary is increasing the Special Affordable Goal are essentially the same as those given in Section H.4 of Appendix A for the Low- and Moderate-Income Goal. Although that discussion will not be repeated here, the main considerations are the following: Freddie Mac's re-entry into the multifamily market; the underlying strength of the primary mortgage market for lower-income families; the need for the GSEs, and particularly Freddie Mac, to improve their purchases of mortgages for lower-income families and their communities; the existence of several low-income market segments that would benefit from more active efforts by the GSEs; and the substantial profits and financial capacity of Fannie Mae and Freddie Mac. The Department's analysis shows that the GSEs are not leading the market in purchasing loans that qualify for the Special Affordable Goal. There are also plenty of opportunities for the GSEs to improve their performance in purchasing special affordable loans. The GSEs' accounted for only 24 percent of the special affordable market in 1997—a figure substantially below their 39-percent share of the overall market.

4. Multifamily Purchases—Further Analysis

The multifamily sector is especially important in the establishment of the special affordable housing goals for Fannie Mae and Freddie Mac because of the relatively high percentage of multifamily units meeting the special affordable goal as compared with single-family. In 1997, 57 percent of units backing Freddie Mac's multifamily acquisitions met the special affordable goal, representing 31 percent of units counted toward its special affordable goal, at a time when multifamily units represented only 8 percent of total annual purchase volume. Corresponding percentages for Fannie Mae were as follows: 54 percent of units backing multifamily acquisitions met the special affordable goal; multifamily represented 44 percent of units meeting the special affordable goal but only 13 percent of total purchase volume.[3]

Significant new developments in the multifamily mortgage market have occurred since the publication of the current version of the GSE Final Rule in December 1995, most notably the increased rate of debt securitization via Commercial Mortgage Backed Securities (CMBS) and a higher level of equity securitization by Real Estate Investment Trusts (REITs). Fannie Mae has played a role in establishing underwriting standards that have been widely emulated in the growth of the CMBS market. Freddie Mac has contributed to the growth and stability of the CMBS sector by acting as an investor.

Increased securitization of debt and equity interests in multifamily property present the GSEs with new challenges as well as new opportunities. The GSEs are currently experiencing a higher degree of secondary market competition than they did in 1995. At the same time, recent volatility in the CMBS market underlines the need for an ongoing GSE presence in the multifamily secondary market. The potential for an increased GSE presence is enhanced by virtue of the fact that an increasing proportion of multifamily mortgages are originated to secondary market standards.

Despite the expanded presence of the GSEs in the multifamily mortgage market and the rapid growth in multifamily securitization by means of CMBS, increased secondary market liquidity does not appear to have benefited all segments of the market equally. Small properties with 5–50 units appear to have been adversely affected by excessive borrowing costs as described in Appendix A. Another market segment that appears experiencing difficulty in obtaining mortgage credit consists of multifamily properties with significant rehabilitation needs. Properties that are more than 10 years old are typically classified as ''C'' or ''D'' properties, and are considered less attractive than newer properties by many lenders and investors

Context. As discussed above, in the 1995 Final Rule, the multifamily subgoal for the 1996–1999 period was set at 0.8 percent of the dollar value of each GSEs' respective 1994 origination volume, or $998 million for Freddie Mac and $1.29 billion for Fannie Mae. Freddie Mac exceeded the goal by a narrow margin in 1996 and more comfortably in 1997–1998. Fannie Mae has exceeded the goal by a wide margin in all three years.

The experience of the past two years suggests the following preliminary findings regarding the multifamily special affordable subgoal:

The goal has contributed toward a significantly increased presence by Freddie Mac in the multifamily market.

Fannie Mae's performance has surpassed the goal by such a wide margin that it can be reasonably inferred that the goal has little effect on their behavior.

- The current goal is out of date, as it is based on market conditions in 1993–94.
- The goal has remained at a fixed level, despite significant growth in the multifamily market and in the GSEs' administrative capabilities with regard to multifamily.
- Given that the GSEs have relatively large fixed costs in purchasing multifamily loans, the minimum cost method of meeting the goal involves purchasing a relatively small number of mortgages, each with a relatively large UPB. Thus the goal may provide the GSEs with an additional incentive to purchase mortgages on large properties.

HUD's proposed rule establishes the multifamily subgoal at 0.9 percent of the dollar volume of combined (single family and multifamily) 1998 mortgage purchases in calendar year 2000, and 1.0 percent in each of calendar years 2001–2003. This implies the following thresholds for the two GSEs:[4]

	2001–2003 (in billions)	2000 (in billions)
Fannie Mae	$3.31	$3.68
Freddie Mac	2.46	2.73

The proposed subgoal can be compared with Fannie Mae's and Freddie Mac's 1998 multifamily special affordable multifamily acquisition volumes of $3.5 billion and $2.7 billion, respectively.[5] A 1.0 percent dollar-based multifamily subgoal for 2001–2003 would sustain and likely increase the efforts of both GSEs in the multifamily mortgage market, with particular emphasis upon the special affordable segment.

HUD has identified three alternative approaches for specifying multifamily subgoals for the GSEs, as follows:

(1) Option One—Subgoal Based on Number of Units. In this approach, the multifamily special affordable subgoal would be expressed as a minimum number of units meeting the Special Affordable Housing Goal. A multifamily subgoal for 2001–2003 established at the level of the dollar-based subgoal defined above, divided by $22,953, which is the average of Fannie Mae's and Freddie Mac's ratios of unpaid principal balance to number of units in multifamily properties counted toward the Special Affordable Housing Goal in 1997 (as

[3] Source: HUD analysis of GSE loan-level data. Loans with missing data are excluded from the calculations of the special affordable proportions of multifamily and the multifamily proportion of special affordable.

[4] HUD has determined that the total dollar volume of the GSEs' combined (single and multifamily) mortgage purchases in 1998, measured in unpaid principal balance at acquisition, was as follows: Fannie Mae $367.6 billion; Freddie Mac $273.2 billion.

[5] HUD analysis of GSE loan-level data.

determined by HUD) would generate annual multifamily special affordable subgoals of 160,328 units for Fannie Mae and 118,939 units for Freddie Mac. These compare with Fannie Mae's multifamily special affordable multifamily acquisition volumes of 130,374 units in 1997 and 138,822 units in 1998, and Freddie Mac's performance of 56,255 units in 1997 and 120,776 units in 1998.[6] Such a multifamily subgoal for 2001–2003 would sustain and likely increase the efforts of both GSEs in the multifamily mortgage market, with particular emphasis upon the special affordable segment.[7]

(2) Option Two—Subgoal As A Percent of GSEs' Current Multifamily Mortgage Purchases. Another possible approach is to establish the special affordable multifamily subgoal as a minimum percentage of each GSE's current total dollar volume of multifamily mortgage purchases. For example, the subgoal level for 2001–2003 could be expressed as 58.0 percent of a GSE's multifamily dollar volume. The 58.0 percent threshold under this subgoal option compares with 1997 performance of 54.2 percent for Fannie Mae and 56.6 percent for Freddie Mac.[8] A 58.0 percent multifamily subgoal for 2001–2003 would sustain and likely increase the efforts of both GSEs in the special affordable segment of the multifamily mortgage market.[9]

(3) Option Three—Subgoal Based on Number of Mortgages Acquired. Because the GSEs incur relatively large fixed costs in purchasing multifamily mortgage loans, another alternative to the Special Affordable Multifamily Housing Subgoal would be to establish a subgoal that would be based on the number of mortgages acquired. In this approach, the Special Affordable multifamily subgoal would be expressed as a minimum number of each GSEs' total mortgage purchases. If all the units in the property securing the mortgage are not eligible for the Special Affordable Housing Goal, then subgoal performance would be pro-rated based on the number of qualifying units. In other words, if one mortgage secured a 100-unit property and 50 of the units qualified for the Special Affordable Housing Goal, then subgoal credit would be counted as one-half of a mortgage.[10]

A multifamily subgoal for 2001–2003 established at 0.035 percent of 1997 combined single-family and multifamily purchase dollar volume in number of mortgages acquired (as determined by HUD) would generate annual subgoals of 1,129 multifamily special affordable mortgages for Fannie Mae and 854 for Freddie Mac.[11] A 0.035 percent mortgage-based multifamily subgoal for 2001–2003 would sustain and likely increase the efforts of both GSEs in the multifamily mortgage market, with particular emphasis upon the special affordable segment.[12]

The preamble to this Proposed Rule includes a more complete analysis of these alternatives, with a request for public comments on the alternatives.

5. Conclusion

HUD has determined that the proposed Special Affordable Housing Goal addresses national housing needs within the income categories specified for this goal, while accounting for the GSEs' past performance in purchasing mortgages meeting the needs of very-low-income families and low-income families in low-income areas. HUD has also considered the size of the conventional mortgage market serving very-low-income families and low-income families in low-income areas. Moreover, HUD has considered the GSEs' ability to lead the industry as well as their financial condition. HUD has determined that a Special Affordable Housing Goal of 18 percent in 2000, and 20 percent in 2001–2003, is both necessary and achievable. HUD has also determined that a multifamily special affordable subgoal set at 0.9 percent of the dollar volume of combined (single family and multifamily) 1998 mortgage purchases in 2000, and 1.0 percent in 2001–2003, or one of the alternatives proposed here, is both necessary and achievable.

Appendix D—Estimating the Size of the Conventional Conforming Market for Each Housing Goal

A. Introduction

In establishing the three housing goals, the Secretary is required to assess, among a number of factors, the size of the conventional market for each goal. This Appendix explains HUD's methodology for estimating the size of the conventional market for each of the three housing goals. Following this introduction, Section B describes the main components of HUD's market-share model and identifies those parameters that have a large effect on the relative market shares. Sections C and D discuss two particularly important market parameters, the size of the multifamily market and the share of the single-family mortgage market accounted for by rental properties. With this as background, Section E provides a more systematic presentation of the model's equations and main assumptions. Sections F, G, and H report HUD's estimates for the Low- and Moderate-Income Goal, the Central Cities, Rural Areas, and other Underserved Areas Goal, and the Special Affordable Housing Goal, respectively. Finally, Section I examines the impact of higher FHA loan limits on the conventional market.

In developing this rule, HUD has carefully reviewed existing information on mortgage activity in order to understand the weakness of various data sources and has conducted sensitivity analyses to show the effects of alternative parameter assumptions. Data on the multifamily mortgage market from HUD's Property Owners and Managers' Survey (POMS), not available at the time published the 1995 GSE Final Rule, is utilized here. HUD is well aware of uncertainties with some of the data and much of this Appendix is spent discussing the effects of alternative assumptions about data parameters and presenting the results of an extensive set of sensitivity analyses.

In a critique of HUD's market share model, Blackley and Follain (1995, 1996) concluded that conceptually HUD had chosen a reasonable approach to determining the size of the mortgage market that qualifies for each of the three housing goals.[1] Blackley and Follain correctly note that the challenge lies in getting accurate estimates of the model's parameters.

This appendix reviews in some detail HUD's efforts to combine information from several mortgage market data bases to obtain reasonable values for the model's parameters. Numerous sensitivity analyses are performed in order to arrive at a set of reasonable market estimates.

The single-family market analysis in this appendix is based heavily on HMDA data for the years 1992 to 1998. The HMDA data for 1998 were not released until August 1999, which gave HUD little time to incorporate that data fully into the analyses reported in these Appendices; thus, the discussion below will often focus on the year 1997, with any differences from 1998 briefly noted. However, it should be noted that the year 1997 represents a more typical mortgage market than the heavy refinancing year of 1998. Still, important shifts in mortgage funding that occurred during 1998 will be highlighted in order to offer as complete and updated analysis as possible.

B. Overview of HUD's Market Share Methodology

1. Definition

The size of the market for each housing goal is one of the factors that the Secretary

[6] Source: HUD analysis of GSE loan-level data. Fannie Mae's 1998 performance figures may not fully reflect its multifamily special affordable acquisition capabilities because Fannie Mae did not obtain data necessary to qualify many of their multifamily seasoned loan purchases for the special affordable goal.

[7] If this option were selected, appropriate subgoal thresholds for the year 2000 transition period could be developed.

[8] Source: HUD analysis of GSE loan-level data. 1997 figures are used here because the share of Fannie Mae's multifamily acquisitions meeting the special affordable goal is unusually low in 1998 as noted above because Fannie Mae did not verify whether proceeds of seasoned multifamily loans it acquired were ''recycled'' into new lending per FHEFSSA requirements.

[9] If this option were selected, appropriate subgoal thresholds for the year 2000 transition period could be developed.

[10] A similar pro-rating technique is specified in HUD's regulations at 24 CFR, Section 81.14(d)(2), for purposes of calculating credit toward the multifamily special affordable subgoal. Specifically, the mortgage loan amount is multiplied by the proportion of units qualifying toward the special affordable goal.

[11] HUD has determined that the number of mortgage loans purchased by the GSEs in 1998 was as follows: Fannie Mae—3,226,786; Freddie Mac—2,439,194.

[12] If this option were selected, appropriate subgoal thresholds for the year 2000 transition period could be developed.

[1] Dixie M. Blackley and James R. Follain, ''A Critique of the Methodology Used to Determine Affordable Housing Goals for the Government Sponsored Housing Enterprises,'' unpublished report prepared for Office of Policy Development and Research, Department of Housing and Urban Development, October 1995; and ''HUD's Market Share Methodology and its Housing Goals for the Government Sponsored Enterprises,'' unpublished paper, March 1996.

is required to consider when setting the level of each housing goal.[2] Using the Low- and Moderate-Income Housing Goal as an example, the market share in a particular year is defined as follows:

Low- and Moderate-Income Share of Market: The number of dwelling units financed by the primary mortgage market in a particular calendar year that are occupied by (or affordable to, in the case of rental units) families with incomes equal to or less than the area median income *divided by* the total number of dwelling units financed in the conforming conventional primary mortgage market.

There are three important aspects to this definition. First, the market is defined in terms of ''dwelling units'' rather than, for example, ''value of mortgages'' or ''number of properties.'' Second, the units are ''financed'' units rather than the entire stock of all mortgaged dwelling units; that is, the market-share concept is based on the mortgage flow in a particular year, which will be smaller than total outstanding mortgage debt. Third, the low- and moderate-income market is expressed relative to the overall conforming conventional market, which is the relevant market for the GSEs.[3] The low- and moderate-income market is defined as a percentage of the conforming market; this percentage approach maintains consistency with the method for computing each GSE's performance under the Low- and Moderate-Income Goal (that is, the number of low- and moderate-income dwelling units financed by GSE mortgage purchases relative to the overall number of dwelling units financed by GSE mortgage purchases).

2. Three-Step Procedure

Ideally, computing the low- and moderate-income market share would be straightforward, consisting of three steps:

(Step 1) Projecting the market shares of the four major property types included in the conventional conforming mortgage market:
- (a) Single-family owner-occupied dwelling units (SF–O units);
- (b) Rental units in 2–4 unit properties where the owner occupies one unit (SF 2–4 units);[4]
- (c) Rental units in one-to-four unit investor-owned properties (SF Investor units); and,
- (d) Rental units in multifamily (5 or more units) properties (MF units).[5]

(Step 2) Projecting the ''goal percentage'' for each of the above four property types (for example, the ''Low- and Moderate-Income Goal percentage for single-family owner-occupied properties'' is the percentage of those dwelling units financed by mortgages in a particular year that are occupied by households with incomes below the area median).

(Step 3) Multiplying the four percentages in (2) by their corresponding market shares in (1), and summing the results to arrive at an estimate of the overall share of dwelling units financed by mortgages that are occupied by low- and moderate-income families.

The four property types are analyzed separately because of their differences in low- and moderate-income occupancy. Rental properties have substantially higher percentages of low- and moderate-income occupants than owner-occupied properties. This can be seen by the following illustration of Step 3's basic formula for calculating the size of the low- and moderate-income market:[6]

Property type	(Step 1) share of market (percent)	(Step 2) low-mod share (percent)	(Step 3) multiply (1) x (2) (percent)
(a) SF–0	71.1	40.0	28.4
(b) SF 2–4	2.0	90.0	1.8
(c) SF Investor	10.7	90.0	9.6
(d) MF	16.2	90.0	14.6
Total Market	100.0		54.4

In this example, low- and moderate-income dwelling units are estimated to account for 54 percent of the total number of dwelling units financed in the conforming mortgage market. To examine the other housing goals, the ''goal percentages'' in Step 2 would be changed and the new ''goal percentages'' would be multiplied by Step 1's property distribution, which remains constant. For example, the Central Cities, Rural Areas, and Other Underserved Areas Goal[7] would be derived as follows under one set of assumptions:

Property Type	(Step 1) share of market (percent)	(Step 2) underserved area share (percent)	(Step 3) multiply (1) x (2) (percent)
(a) SF–0	71.1	25.0	17.8
(b) SF 2–4	2.0	42.5	0.9
(c) SF Investor	10.7	42.5	4.5
(d) MF	16.2	48.0	7.8
Total Market	100.0		31.0

In this example, units eligible under the Underserved Areas Goal are estimated to account for 31 percent of the total number of dwelling units financed in the conforming mortgage market.

3. Data Issues

Unfortunately, complete and consistent mortgage data are not readily available for carrying out the above three steps. A single data set for calculating either the property shares or the housing goal percentages does not exist. However, there are several major data bases that provide a wealth of useful information on the mortgage market. HUD combined information from the following

[2] Sections 1332(b)(4), 1333(a)(2), and 1334(b)(4).

[3] So-called ''jumbo'' mortgages, greater than $227,150 in 1998 for 1-unit properties, are excluded in defining the conforming market. There is some overlap of loans eligible for purchase by the GSEs with loans insured by the FHA and guaranteed by the Veterans Administration.

[4] The owner of the SF 2–4 property is counted in (a).

[5] Property types (b), (c), and (d) consist of rental units. Property types (b) and (c) must sometimes be combined due to data limitations; in this case, they are referred to as ''single-family rental units'' (SF–R units).

[6] The property shares and low-mod percentages reported here are based on one set of model assumptions; other sets of assumptions are discussed in Section E.

[7] This goal will be referred to as the ''Underserved Areas Goal''.

sources: the Home Mortgage Disclosure Act (HMDA) reports, the American Housing Survey (AHS), HUD's Survey of Mortgage Lending Activity (SMLA), Property Owners and Managers Survey (POMS) and the Census Bureau's Residential Finance Survey (RFS). In addition, information on the mortgage market was obtained from the Mortgage Bankers Association, Fannie Mae, Freddie Mac and other organizations.

Property Shares. To derive the property shares, HUD started with forecasts of single-family mortgage originations (expressed in dollars). These forecasts, which are available from the GSEs and industry groups such as the Mortgage Bankers Association, are based on HUD's SMLA. The SMLA does not provide information on conforming mortgages, on owner versus renter mortgages, or on the number of units financed. Thus, to estimate the number of single-family units financed in the conforming conventional market, HUD had to project certain market parameters based on its judgment about the reliability of different data sources. Sections D and E report HUD's findings related to the single-family market.

Total market originations are obtained by adding multifamily originations to the single-family estimate. Because of the wide range of estimates available, the size of the multifamily mortgage market turned out to be one of the most controversial issues raised during the 1995 rule-making process. In 1997, HMDA reported about $20.0 billion in multifamily originations while the SMLA reported more than double that amount ($47.9 billion). Because most renters qualify under the Low- and Moderate-Income Goal, the chosen market size for multifamily can have a substantial effect on the overall estimate of the low- and moderate-income market (as well as on the estimate of the special affordable market). Thus, it is important to consider estimates of the size of the multifamily market in some detail, as Section C does. In addition, given the uncertainty surrounding estimates of the multifamily mortgage market, it is important to consider a range of market estimates, as Sections G–H do.

Goal Percentages. To derive the goal percentages for each property type, HUD relied heavily on HMDA, AHS, and POMS data. For single-family owner originations, HMDA provides comprehensive information on borrower incomes and census tract locations for metropolitan areas. Unfortunately, it provides no information on the incomes of renters living in mortgaged properties (either single-family or multifamily) or on the rents (and therefore the affordability) of rental units in mortgaged properties. The AHS, however, does provide a wealth of information on rents and the affordability of the outstanding stock of single-family and multifamily rental properties. An important issue here concerns whether rent data for the stock of rental properties can serve as a proxy for rents on newly-mortgaged rental properties. The POMS data, which were not available during the 1995 rule-making process, are used below to examine the rents of newly-mortgaged rental properties; thus, the POMS data supplements the AHS data. The data base issues as well as other technical issues related to the goal percentages (such as the need to consider a range of mortgage market environments) are discussed in Sections F, G, and H, which present the market share estimates for the Low- and Moderate-Income Goal, the Underserved Areas Goal, and the Special Affordable Goal, respectively.

4. Conclusions

HUD is using the same basic methodology for estimating market shares that it used during 1995. As demonstrated in the remainder of this Appendix, HUD has attempted to reduce the range of uncertainty around its market estimates by carefully reviewing all known major mortgage data sources and by conducting numerous sensitivity analyses to show the effects of alternative assumptions. Sections C, D, and E report findings related to the property share distributions called for in Step 1, while Sections F, G, and H report findings related to the goal-specific market parameters called for in Step 2. These latter sections also report the overall market estimates for each housing goal calculated in Step 3.

During the 1995 rule-making process, HUD contracted with the Urban Institute to comment on the reasonableness of its market share approach and to conduct analyses related to specific comments received from the public about its market share methodology. HUD continues to rely on several findings from the Urban Institute reports and they are again discussed throughout this Appendix. Since 1995, HUD has continued to examine the reliability of data sources about mortgage activity. HUD's Office of Policy Development and Research has published several studies concerning the reliability of HMDA data.[8] In addition, since 1995, HUD has gathered additional information regarding the mortgages for multifamily and single-family rental properties through the Property Owners and Managers Survey (POMS). Findings regarding the magnitude of multifamily originations, as well as the rent and affordability characteristics of mortgages backing both single-family and multifamily rental properties have been made by combining data from POMS with that from internal Census Bureau files from the 1995 American Housing Survey-National Sample. The results of these more recent analyses will be presented in the following sections.

C. Size of the Conventional Multifamily Mortgage Market

This section derives projections of conventional multifamily mortgage origination volume.[9]

The multifamily sector is especially important in the establishment of housing goals for Fannie Mae and Freddie Mac because multifamily properties are overwhelmingly occupied by low- and moderate-income families. For example, in 1997, 13 percent of units financed by Fannie Mae were multifamily, but 90 percent of those units met the Low- and Moderate-Income Goal, accounting for 27 percent of all of Fannie Mae's low- and moderate-income purchases for that year.[10] Multifamily acquisitions are also of strategic significance with regard to the Special Affordable Goal. In 1997, 57 percent of units backing Freddie Mac's multifamily acquisitions met the Special Affordable Goal, representing 31 percent of units counted toward its Special Affordable Goal, at a time when multifamily units represented only 8 percent of total annual purchase volume.[11]

This discussion is organized as follows: Section 1 identifies and evaluates available historical data resources. Section 2 undertakes an analysis of estimated conforming multifamily origination volume for 1995 through 1998. Section 3 establishes projections regarding conventional multifamily origination volume for the year 2000 and beyond.

1. Conventional multifamily origination volumes, 1987–1997

Two of the principal sources of evidence on conventional multifamily origination volumes are Home Mortgage Disclosure Act data base (HMDA) and the HUD Survey of Mortgage Lending Activity (SMLA).

a. Survey of Mortgage Lending Activity (SMLA)

The data that enter into SMLA are compiled by HUD from source materials generated in various ways from the different institutional types of mortgage lenders. Data on savings associations are collected for HUD by the Office of Thrift Supervision; these data cover all thrifts, not a sample. Mortgage company and life insurance company data are collected through sample surveys conducted by the Mortgage Bankers Association of America and the American Council of Life Insurance, respectively. Data on commercial banks and mutual savings banks are collected through sample surveys conducted by the American Bankers Association. The Federal credit agencies and State credit agencies report their data directly to HUD. Local credit agency data are collected by HUD staff from a publication that lists their mortgage financing activities.

b. Home Mortgage Disclosure Act (HMDA)

HMDA data are collected by lending institutions and reported to their respective regulators as required by law. HMDA was

[8] See Randall M. Scheessele, *HMDA Coverage of the Mortgage Market,* Housing Finance Working Paper No. 7, Office of Policy Development and Research, Department of Housing and Urban Development, July 1998; and 1998 *HMDA Highlights,* Housing Finance Working Paper No. HF–009, Office of Policy Development and Research, Department of Housing and Urban Development, October 1999.

[9] Because they are not counted toward the GSE housing goals (with the exception of a relatively small risk-sharing program), FHA mortgages are excluded from this analysis. Other categories of mortgages, considering the type of insurer, servicer, or holder, do not tend to have mortgage characteristics that appear to differ substantially from the multifamily mortgages that are purchased by Fannie Mae and Freddie Mac. There is thus no particular basis for excluding them.

[10] Corresponding percentages for Freddie Mac were 95 percent and 19 percent. Missing data are excluded from these calculations. Source: Annual Housing Activity Reports, 1997.

[11] Corresponding percentages for Fannie Mae were 54 percent and 44 percent.

enacted as a mechanism to permit the public to determine locations of properties on which local depository institutions make mortgage loans, ''to enable them to determine whether depository institutions are filling their obligations to serve the housing needs of the communities and neighborhoods in which they are located. . .'' (12 USC 2801). HMDA reporting requirements generally apply to all depository lenders with more than $29 million in total assets and which have offices in Metropolitan Statistical Areas. Reporting is generally required of other mortgage lending institutions (e.g. mortgage bankers) originating at least 100 home purchase loans annually provided that home purchase loan originations exceed 10 percent of total loans. Reporting is required for all loans closed in the name of the lending institution and loans approved and later acquired by the lending institution, including multifamily loans. Thus, the HMDA data base concentrates on lending by depository institutions in metropolitan areas but, unlike SMLA and RFS, it is not a sample survey; it is intended to include loan-level data on all loans made by the institutions that are required to file reports.

Table D.1 presents figures for 1987 through 1997 for SMLA and HMDA.[12] The main question raised by this comparison is why SMLA and HMDA report such different multifamily estimates. Part of the problem arises from double-counting of originations by mortgage banks in the American Bankers Association (ABA) and Mortgage Bankers Association (MBA) surveys conducted as part of SMLA. Originations by mortgage banks which are affiliated with commercial banks may be counted in both surveys.

There is also evidence that undercounting of multifamily originations in HMDA contributes to observed discrepancies between HMDA and SMLA. For example, less than half of Fannie Mae's 1997 acquisition volume of mortgages originated in 1997 are reported in HMDA. HMDA reports that Freddie Mac purchased 14 loans from mortgage banks in 1997, yet in loan-level data provided to HUD, Freddie Mac indicates that purchased 453 loans from mortgage bankers.[13] Further evidence of the poor quality of the HMDA multifamily data is the fact that it reported that in 1997 a larger volume of multifamily loans were sold to Freddie Mac than to Fannie Mae, when in fact Freddie Mac's purchases were less than that of Fannie Mae's, based on loan-level data provided by the GSEs to HUD.

[12] The comparison between SMLA and HMDA is provided only through 1997 because 1998 SMLA data were not available as of the time of this writing.

[13] Some of loans in the GSE data may have been originated prior to 1997, and therefore not included in 1997 HMDA totals. However, because mortgage banks ordinarily do not hold mortgages in portfolio, it is implausible that a majority of Freddie Mac's purchases from mortgage banks were originated prior to 1997.

Table D.1

Conventional Multifamily Market Estimates
(billions of dollars)

Year	SMLA	HMDA
1987	38.3	
1988	35.2	
1989	30.2	
1990	30.1	
1991	24.6	
1992	25.2	10.2
1993	30.0	12.8
1994	31.7	14.8
1995	37.9	12.8
1996	43.7	16.0
1997	44.6	19.5

Table D.2

Comparison of SMLA and HMDA Figures, 1997 Conventional Multifamily Originations
(millions of dollars)

Type of Lender	SMLA	HMDA
Commercial Banks	$ 24,570	$ 10,766
Savings & Loans; Multifamily Savings Bank	$ 7,164	$ 7,009
Credit Unions	$ -	$ 27
Life Insurance Companies	$ 1,407	$ -
Pension Funds (incl. State & Local Gov't)	$ 1,063	$ -
Mortgage Companies	$ 9,134	$ 1,746
Federal Credit Agencies	$ 408	$ -
State and Local Gov't Credit Agencies	$ 840	$ -
TOTAL	$ 44,586	$ 19,548

(Totals may not add due to rounding.)

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In addition, the HMDA data base does not cover a number of important categories of multifamily lenders such as life insurance companies and State housing finance agencies, providing another reason that the HMDA data understates the size of the multifamily market.

With this in mind, we proceed to an examination of origination volumes reported by these two data sources by type of lender. Table D.2 shows the basic figures. The columns headed ''SMLA'' and ''HMDA'' show aggregate dollar volumes of loan originations by category of originator in 1997.

In 1995, the Urban Institute conducted extensive analysis to address the issue of discrepancies between HMDA and SMLA. The researchers found that the 1993 SMLA multifamily figure ($30 billion in conventional originations) was too high, chiefly because of upward bias in the commercial bank originations figure, and the HMDA estimate ($12.8 billion) was too low for a variety of reasons including the omission of some categories of lenders.[14]

2. Alternative Measures

The inconsistencies between SMLA and HMDA underscore the importance of finding other ways to measure the size of the conventional multifamily market. The remainder of this discussion analyzes alternative measures based on (a) analysis of the HUD Property Owners and Managers Survey (POMS); (b) a statistical model developed by Urban Institute researchers; and (c) combining data from a variety of sources in a manner that avoids double-counting.

a. HUD Property Owners and Managers Survey (POMS)

HUD's analysis of data in the HUD Property Owners and Managers Survey (POMS) yields an estimated size of the 1995 multifamily origination market of approximately $37 billion. Analysis of this survey data is complicated by virtue of the fact that data on mortgage loan amount are missing for a large number of properties, requiring the imputation of missing values, and also because the mortgage loan amount is ''topcoded'' on some observations in order to protect the privacy of respondents. Such topcoding complicates the use of multiple regression techniques for imputation of missing values. In order to more effectively utilize regression techniques, HUD staff and contractors were sworn in as special employees of the Census Bureau in order to gain access to the internal Census file. The regression specification with the greatest explanatory power imputed missing loan amounts on the basis of number of units, region of the country, and a dummy variable for large properties with more than 1,000 units.[15] The use of this specification yielded an estimated total multifamily market size of $39.1 billion. After subtracting $2.3 billion in FHA-insured originations, this yields $36.7 billion as the estimated size of the conforming multifamily mortgage market in 1995, compared with the SMLA figure of $37.9 billion and the HMDA figure of $12.8 billion.[16] These results suggest that SMLA figures more accurately represent the overall size of the conventional multifamily mortgage market than does HMDA.

b. Urban Institute Statistical Model

In 1995, Urban Institute researchers developed a model to project multifamily origination volumes from 1992 forward, based on data from the 1991 Survey of Residential Finance.[17] They applied a statistical model of mortgage terminations based on Freddie Mac's experience from the mid-1970s to around 1990. While mortgage characteristics in 1990 are not wholly similar to the characteristics of these historical mortgages financed by Freddie Mac, nevertheless the prepayment propensities of contemporary mortgages may at least be approximated by the prepayment experience of these historical mortgages. The research methodology took account of the influence of interest rate fluctuations on prepayments of the historical mortgages; the projections assumed that prepayments are motivated mainly by property sales. Forecast total mortgage origination volume (including FHA) based on mortgages existing in 1991 were $40.8 billion for 1995. After removing FHA-insured loans totaling $2.3 billion, this method yields $38.5 billion as the estimated size of the conforming multifamily mortgage market. The latter figure is closer to the $36.7 billion POMS estimate and the $37.9 billion SMLA figure than to the $12.8 billion HMDA number.

Turning to 1997, the Urban Institute model generates a prediction of $47.2 billion. After removing $3.3 billion in FHA-insured originations, this generates an estimated conventional multifamily market figure of $43.9 billion, indicating that actual 1997 conventional origination volume may be closer to the $44.6 billion SMLA figure than to the $19.5 billion HMDA number cited earlier.

c. Alternative Approach

The increased availability of data on mortgages originated for the securitization market suggests yet another alternative method of deriving a rough estimate of the size of the conventional multifamily market as a further check on the accuracy of estimates derived from SMLA, HMDA, POMS, and the Urban Institute model. Total conventional multifamily volume can be estimated as the sum of (i) conventional nonagency (non-FHA, non-GSE) securitization; (ii) commercial bank originations less securitizations and secondary market sales or current-year and seasoned loans in portfolio; and (iii) GSE acquisitions. These data are from data published annually by *Inside MBS & ABS*, a trade newsletter; SMLA, and the loan-level data provided by the GSEs to the Department. Annual commercial bank securitization volume was calculated from a database published by *Commercial Mortgage Alert,* another trade newsletter.

Perhaps the most significant potential shortcoming of this approach is that nonagency securitization and GSE acquisitions include seasoned loans that are originated in years prior to those in which they are securitized or purchased on the secondary market. It is assumed here that seasoned loan transaction volume is relatively constant, in absolute volume, from year to year, which implies that the inclusion of seasoned loans will not bias the results. For example, some non-bank loans originated in 1996 will not be counted under the method proposed here until they are securitized, or purchased by a GSE, in 1997, but a similar volume of 1995 originations are not securitized or sold on the secondary market until 1996.[18] Hence the above technique generates a useful approximation to actual 1996 origination volume. A similar argument applies to other years.

It can also be argued that the SMLA commercial bank figure includes some originations by mortgage banks because of the double-counting issue discussed previously. It is assumed that these are removed when securitizations and secondary market sales are subtracted. This problem aside, the SMLA commercial bank figure appears to be derived using a new, and relatively carefully designed stratified survey, and therefore may be considered fairly reliable when used in the manner proposed here.

This method does not consider unsecuritized acquisitions by thrifts, life insurance companies, and other smaller entities in the multifamily mortgage market. In this regard, this method provides a conservative estimate of the size of the conventional multifamily market.

This method generates the following results for multifamily conventional origination volume for 1995–1997:

1995—$32.3 billion
1996—$37.2 billion
1997—$40.7 billion

The 1995 and 1997 estimates can be compared with the following estimates discussed previously.

[14] Amy D. Crews, Robert M. Dunsky, and James R. Follain, ''What We Know about Multifamily Mortgage Originations,'' report for the U.S. Department of Housing and Urban Development, October 1995.

[15] R^2, a measure of the degree to which the regression specification explains the variation in mortgage loan amount for observations where this field was populated, was 0.69 for this specification.

[16] FHA volume for 1995 is from *U.S. Housing Market Conditions,* 1998:4, Table 15.

[17] Robert Dunsky, James R. Follain, and Jan Ondrich, ''An Alternative Methodology to Estimate the Volume of Multifamily Mortgage Originations,'' report for the U.S. Department of Housing and Urban Development, October 1995.

[18] Loans originated by banks in 1996 and then sold on the secondary market in 1997 would count only toward the 1996 total. Such loans would count toward the 1996 total because these loans would be counted in 1996 commercial bank originations less sales per the SMLA, since they are not sold in 1996. In 1997, when they are sold on the secondary market, such loans would be added to either the GSE acquisition or nonagency securitization totals, but would be subtracted from commercial bank originations less loan sales per the SMLA. The net effect of adding such loans to the GSE/nonagency categories and subtracting them from the commercial bank category is that they would not be counted toward the 1997 total.

	1995 (billions)	1997 (billions)
Urban Institute	$38.5	$47.2
POMS	36.7	
SMLA figure	37.9	44.6
HMDA	12.8	19.5
Alternative Approach	32.3	40.7

The market estimates based on securitization data are thus somewhat lower that those derived from the POMS and SMLA surveys and by the Urban Institute model, but are considerably higher than those derived from HMDA.

In discussions with HUD staff, Fannie Mae has put the estimated size of the 1997 conforming multifamily market at approximately $35–$40 billion, based upon a combination of various data sources. This range is slightly more conservative than the $40.7 million figure derived here using securitization, GSE, and ABA data.

Preliminary indications suggest that multifamily origination volume in 1998 is unusually high. Unfortunately, 1998 SMLA data were not yet available as of the time of this writing. If 1997 SMLA data are used as a proxy for 1998 multifamily commercial bank originations, and added to nonagency securitization and GSE acquisitions (which were available), a figure of $59.2 billion can be derived. In written comments provided to HUD in early 1999, in contrast, Fannie Mae asserted that 1998 multifamily volume was approximately $38–43 billion. In a meeting with HUD staff, Freddie Mac staff provided an estimate of $40–50 billion. Given the uncertainty regarding 1998 origination activity as of the time of this writing, an adjusted figure of $50 billion may be used on an interim basis until further data becomes available.[19]

3. Projections for 2000 and Beyond

Considerations influencing future multifamily origination volume include interest rates, property values, and construction starts. Taking all of these factors into consideration, Fannie Mae forecasts of a 10 percent decrease in 1999 relative to 1998 followed by a 2 percent increase in 2000, included in comments provided to the Department, appear reasonable. [20]

If these projections regarding 1999 and year 2000 origination volume are applied to the Department's of $50 billion estimate of 1998 conventional multifamily origination volume, a projection of $46 billion in year 2000 volume can be derived. Alternatively, if 1998 origination volume is in the $38–43 billion range indicated by Fannie Mae, year 2000 conventional origination volume is expected to lie in the $35–$40 billion range. On the other hand, if 1998 origination volume reached $59 billion, the high end of the estimates discussed previously, year 2000 volume could be as high as $54 billion. Turning to the Urban Institute statistical model discussed earlier, total multifamily originations (including FHA) are projected to reach $54 billion in 2000. After removing $2.9 billion in anticipated FHA-insured originations, this leaves projected conventional volume of $51.1 billion.[21]

Taking all of these estimates into consideration, year 2000 multifamily conventional origination volume is likely to lie in the $40–$52 billion range, with an expected ''baseline'' value of $46 billion.

Average Loan Amounts. Another issue regarding the multifamily mortgage market concerns average loan amount per unit. This ratio is used in converting year-2000 estimates of conventional multifamily lending volume as measured in dollars into a number of units financed. For this purpose, the ratio of total UPB to total units financed, rather than UPB on a ''typical'' multifamily unit, is the appropriate measure.

HUD anticipates overall conventional multifamily loan amount per unit of $30,000 in the year 2000 based on analysis of newly-originated GSE and non-GSE multifamily mortgage loans. GSE figures on loan amount per unit can be obtained from GSE loan-level data provided to HUD. Non-GSE loan amount per unit figures are from HUD's analysis of recently-originated conventional non-GSE multifamily mortgages. [22] Combining these sources, and calculating a weighted average based on relative market shares yields an estimated UPB per unit of $25,167 in 1997 and $29,506 in 1998. The increase from 1997–1998 appears to be largely due to a significant increase in appraised value per unit, which may be associated with the relatively low interest rates prevailing in 1998. [23] Because interest rates are not expected to fall significantly from 1998 levels at the time of this writing, it appears reasonable to project that year-2000 conventional multifamily average loan amount will continue at the 1998 level of $30,000 under HUD's baseline projection of $46 billion for the year 2000. Under the lower projection of $40 billion, an average loan amount of $29,000 is assumed.

D. Single-Family Owner and Rental Mortgage Market Shares

1. Available Data

As explained later, HUD's market model will also use projections of mortgage originations on single-family (1–4 unit) properties. Current data combine mortgage originations for the three different types of single-family properties: owner-occupied, one-unit properties (SF-O); 2–4 unit rental properties (SF 2–4); and 1–4 unit rental properties owned by investors (SF-Investor). The fact that the goal percentages are much higher for the two rental categories argues strongly for disaggregating single-family mortgage originations by property type. This section discusses available data for estimating the relative size of the single-family rental mortgage market.

The RFS and HMDA are the two data sources for estimating the relative size of the single-family rental market. The RFS, based on mortgages originated between 1987 and 1991, provides mortgage origination estimates for each of the three single-family property types. HMDA divides newly-originated single-family mortgages into two property types:[24]

(1) Owner-occupied originations, which include both SF-O and SF 2–4.

(2) Non-owner-occupied mortgage originations, which include SF Investor.

The percentage distributions of mortgages from these data sources are as follows:

[19] The Urban Institute model predicts $50 billion for the *entire* 1998 multifamily market, including FHA.

[20] Multifamily interest rates increased in September, 1998 as part of a broader ''flight to quality'' precipitated by volatility in the world economy. While CMBS spreads were the most strongly affected, agency yield spreads also widened during this period. Further detail is provided in Appendix A. ''Expectations may have begun to adjust downward even before the recent troubles in the financial markets'' according to ''The Multifamily Outlook,'' Jack Goodman, *Urban Land,* November 1998. p. 92. The CMBS market, of which approximately 25 percent is multifamily, is expected by Morgan Stanley to fall from approximately $80 billion in 1998 to $50 billion in 1999 (''A Cloudy '99 for Subprime Lenders, HELs, CMBS,'' *Mortgage Backed Securities Letter,* January 4, 1999, p. 1). Donaldson, Lufkin & Jenrette anticipates a decrease from $76 billion to $55 billion (March Hochstein, ''Commercial Mortgage Bond Issuance Seen Falling,'' *American Banker*, December 22, 1998, p. 2). To the extent that multifamily origination volume falls in late 1999 associated with concerns regarding Y2K, the contraction in lending volume from 1998 to 1999 could exceed 10 percent. This possibility is taken into consideration here by providing a range of estimates for year 2000 origination volume as discussed below.

[21] Projected year 2000 FHA volume was calculated as the mean of 1997 and 1998 volume pursuant to discussions with staff in HUD's Housing Finance Analysis Division.

[22] Sample sizes on conventional non-GSE multifamily loans are 1,047 and 535 in 1997 and 1998, respectively.

[23] Commercial property values are inversely related to interest rates because a reduction in interest rates reduces the rate at which income streams are discounted.

[24] This ignores the HMDA loans with ''non-applicable'' for owner type.

	1997 HMDA (percent)			1987–91[1] RFS	HUD's 1995 Rule
	Purchase	Refinance	All		
SF-O	90.6	92.6	91.5	80.4	88.0
SF 2–4	(included above)			2.3	2.0
SF Investor	9.4	7.4	8.5	17.3	10.0
Total	100.0	100.0	100.0	100.0	100.0

[1] The year-by-year distributions from the RFS were not too different from the average distribution given in the text.

Because HMDA combines the first two categories, the comparisons between the data bases must necessarily focus on the SF investor category. According to HMDA, investors account for 9.4 percent of home purchase loans and 7.4 percent of refinance loans.[25] The RFS estimate of 17.3 percent is over twice HMDA's overall estimate of 8.5 percent. In its 1995 rule, HUD projected a 10.0 percent share for the SF investor group, only 1.5 percentage points higher than the 1997 HMDA figure. As discussed below, HUD's projection was probably quite conservative; however, given the uncertainty around the data, it is difficult to draw firm conclusions about the size of the single-family rental market.

2. Analysis of Investor Market Share

Blackley and Follain. During the 1995 rule-making, HUD asked the Urban Institute to analyze the differences between the RFS and HMDA investor shares and determine which was the more reasonable. The Urban Institute's analysis of this issue is contained in reports by Dixie Blackley and James Follain.[26] Blackley and Follain provide reasons why HMDA should be adjusted upward as well as reasons why the RFS should be adjusted downward. One reason for adjusting HMDA's investor share upward is that the investor share of mortgage originations as reported by HMDA is much lower than the investor share of the single-family rental stock as reported by the AHS.

Blackley and Follain also noted that the fact that investor loans prepay at a faster rate than other single-family loans suggests that the investor share of single-family mortgage originations should be higher not lower than the investor share of the single-family housing stock. Blackley and Follain (1995) conclude that ''this brings into question the investor share based upon HMDA data'' (page 15).

The RFS's investor share should be adjusted downward in part because the RFS assigns all vacant properties to the rental group, but some of these are likely intended for the owner market, especially among one-unit properties. Blackley and Follain's analysis of this issue suggests lowering the investor share from 17.3 percent to about 14–15 percent.

Finally, Blackley and Follain note that a conservative estimate of the SF investor share is advisable because of the difficulty of measuring the magnitudes of the various effects that they analyzed.[27] In their 1996 paper, they conclude that 12 percent is a reasonable estimate of the investor share of single-family mortgage originations.[28] Blackley and Follain caution that uncertainty exists around this estimate because of inadequate data.

3. Single-Family Market in Terms of Unit Shares

The market share estimates for the housing goals need to be expressed as percentages of units rather than as percentages of mortgages. Thus, it is necessary to compare unit-based distributions of the single-family mortgage market under the alternative estimates discussed so far. The mortgage-based distributions given above in Section D.1 were adjusted in two ways. First, the owner-occupied HMDA data were disaggregated between SF-O and SF 2–4 mortgages based on RFS data, which show that SF 2–4 mortgages represent approximately 2 percent of all single-family mortgages. Second, the resulting mortgage-based distributions were shifted to unit-based distributions by applying the unit-per-mortgage assumptions in HUD's proposed rule. HUD assumed 2.25 units per SF 2–4 property and 1.35 units per SF investor property; both figures were derived from the 1991 RFS.[29]

	1997 HMDA (percent)	1987–91 RFS (percent)	HUD's 1995 rule (percent)	Blackley/ Follain Alternative (percent)
SF–O	84.8	73.8	83.0	80.6
SF–2–4 Owner[1]	*1.9	2.1	1.9	1.9
SF 2–4 Renter	*2.4	2.7	2.4	2.3
SF Investor[1]	10.9	21.4	12.7	15.2
Total	100.0	100.0	100.0	100.0
SF-Rental	13.3	24.1	15.1	17.5

[1] Notice that the SF 2–4 category has been divided into its owner and renter subcomponents. This is easily done based on the assumption of 2.25 units per SF 2–4 mortgage. For each mortgage, one unit represents the owner occupant and 1.25 additional units represent renter occupants. The owner-occupant is included in the SF–O category in this Appendix. This is necessary because different data sources are used to estimate the owner's income and the affordability of the rental units. The income of owners of 2–4 properties are included in the borrower income data reported by HMDA. The AHS and POMS will be used to estimate the affordability of the rental units.

* Estimate

[25] The single-family owner percentages based on 1998 HMDA data are as follows: Purchase (91.0 percent), Refinance (94.5 percent), and All (93.2 percent). The higher ''All'' percent reflects the higher share of refinance mortgages during 1998.

[26] Dixie M. Blackley and James R. Follain, ''A Critique of the Methodology Used to Determine Affordable Housing Goals for the Government Sponsored Housing Enterprises,'' unpublished report prepared for Office of Policy Development and Research, Department of Housing and Urban Development, October 1995; and ''HUD's Market Share Methodology and its Housing Goals for the Government Sponsored Enterprises,'' unpublished paper, March 1996.

[27] For example, they note that discussions with some lenders suggest that because of higher mortgage rates on investor properties, some HMDA-reported owner-occupants may in fact be ''hidden'' investors; however, it would be difficult to quantify this effect. They also note that some properties may switch from owner to renter properties soon after the mortgage is originated. While such loans would be classified by HMDA as owner-occupied at the time of mortgage origination, they could be classified by the RFS as rental mortgages. Again, it would be difficult to quantify this effect given available data.

[28] Blackley and Follain (1996), p. 20.

[29] The unit-per-mortgage data from the 1991 RFS match closely the GSE purchase data for 1996 and 1997. Blackley and Follain show that an adjustment for vacant investor properties would raise the average units per mortgage to 1.4; however, this increase is so small that it has little effect on the overall market estimates.

Three points should be made about these data. First, notice that the ''SF-Rental'' row highlights the share of the single-family mortgage market accounted for by all rental units.

Second, notice that the rental categories represent a larger share of the unit-based market than they did of the mortgage-based market reported earlier. This, of course, follows directly from applying the loan-per-unit expansion factors.

Third, notice that the rental share under HMDA's unit-based distribution is again about one-half of the rental share under the RFS's distribution. The rental share in HUD's 1995 rule is slightly larger than that reported by HMDA. The rental share in the ''Blackley-Follain'' alternative is slightly above that in HUD's 1995 Rule.

4. Conclusions

This section has reviewed data and analyses related to determining the rental share of the single-family mortgage market. There are two main conclusions:

(1) While there is uncertainty concerning the relative size of this market, the projections made by HUD appear reasonable and, in fact, are below the estimate provided by Blackley and Follain.

(2) HMDA likely underestimates the single-family rental mortgage market. Thus, this part of the HMDA data are not considered reliable enough to use in computing the market shares for the housing goals. Various sensitivity analyses of the market shares for single-family rental properties are conducted in Sections F, G, and H. These analyses will show the effects on the overall market estimates of the different projections about the size of the single-family rental market.

E. HUD's Market Share Model

This section integrates findings from the previous two sections about the size of the multifamily mortgage market and the relative distribution of single-family owner and rental mortgages into a single model of the mortgage market. The section provides the basic equations for HUD's market share model and identifies the remaining parameters that must be estimated.

The output of this section is a unit-based distribution for the four property types discussed in Section B.[30] Sections F–H will apply goal percentages to this property distribution in order to determine the size of the mortgage market for each of the three housing goals.

1. Basic Equations for Determining Units Financed in the Mortgage Market

The model first estimates the number of dwelling units financed by conventional conforming mortgage originations for each of the four property types. It then determines each property type's share of the total number of dwelling units financed.

a. Single-Family Units

This section estimates the number of single-family units that will be financed in the conventional conforming market, where single-family units (SF–UNITS) are defined as:

SF–UNITS=SF − O+SF 2 − 4+SF − INVESTOR

First, the dollar volume of conventional conforming single-family mortgages (CCSFM$) is derived as follows:

(1) CCSFM$=CONF%*CONV%*SFORIG$

Where:

CONV%=conforming mortgage originations as a percent (measured in dollars) of conventional single-family originations; estimated to be 87%.[31]

CONF%=conventional mortgage originations as a percent of total mortgage originations; forecasted to 78% by industry and GSEs.[32]

SFORIG$=dollar volume of single-family one-to-four unit mortgages; $1,100 billion is used here as a starting assumption to reflect market conditions during the years 2000–2003.[33] Alternative assumptions will be examined later.[34]

Substituting these values into (1) yields an estimate for the conventional conforming market (CCSFM$) of $746 billion.

Second, the number of conventional conforming single-family mortgages (CCSFM#) is derived as follows:

(2) CCSFM#=CCSFM$/SFLOAN$

Where:

SFLOAN$=the average conventional conforming mortgage amount for single-family properties; estimated to be $100,000.[35]

Substituting this value into (2) yields an estimate of 7.46 million mortgages.

Third, the total number of single-family mortgages is divided among the three single-family property types. Using the 88/2/10 percentage distribution for single-family mortgages (see Section C), the following results are obtained:

(3a) SF − OM#=.88*CCSFM#=number of owner-occupied, one-unit mortgages=6.56 million.

(3b) SF–2–4M#=.02*CCSFM#=number of owner-occupied, two-to-four unit mortgages=.15 million.

(3c) SF–INVM#=.10*CCSFM#=number of one-to-four unit investor mortgages=.75 million.

Fourth, the number of dwelling units financed for the three single-family property types is derived as follows:

(4a) SF–O=SF–OM#+SF–2–4M#=number of owner-occupied dwelling units financed=6.72 million.

(4b) SF 2–4=1.25*SF–2–4M#=number of rental units in 2–4 properties where a owner occupies one of the units=.18 million.[36]

(4c) SF–INVESTOR=1.35* SF–INVM#=number of single-family investor dwelling units financed=1.01 million.

Summing equations 4a–4c gives 7.91 million for the projected number of newly-mortgaged single-family units (SF–UNITS).

b. Multifamily Units

The number of dwelling units financed by conventional conforming multifamily originations is:

(5) MF–UNITS=CCMFM$/MFLOAN$

Where:

CCMFM$=conventional conforming mortgage originations, which are assumed to be $46 billion as a starting point; as discussed in Section C, alternative estimates of the multifamily market will be included in the analysis.

[30] The property distribution reported in Section A is an example of the output of the market share model. Thus, this section completes Step 1 of the three-step procedure outlined in Section A.

[31] From MBA volume estimates, the conventional share of the 1–4 family market was between 86 and 88 percent of the market from 1993 to 1998, with a one-time low of 81 percent in 1994. Calculated from ''1–4 Family Mortgage Origination Volume'' tables in Mortgage Finance Review, Vol. 6, No. 4, p. 7, and Vol. 7, No. 1, p. 7, and from ''MBA Mortgage Finance Forecast,'' September 1999, at www.mbaa.org/marketkdata/forecasts/mffore0999.html.

[32] Data provided by Fannie Mae show that conforming loans have been about 78 percent of total conventional loans over the past few years.

[33] Single-family mortgage originations of $1,100 billion is $370 billion less than the record setting $1,470 billion in 1998 and $266 billion higher than the $834 billion in 1997. As discussed later, single-family originations could differ from $1,100 billion during the 2000–2003 period that the goals will be in effect. As recent experience shows, market projections often change. For example, $1,100 billion is similar to year-2000 projections by the Mortgage Bankers Association made in June, 1999. (*See Mortgage Finance Review,* Vol. 7, No. 2, ''Mortgage Finance Forecasts,'' p. 2.) However, more recently, MBA estimates for year 2000 volume have dropped to $952 billion (see MBA Mortgage Finance Forecast, September 1999). Section F will report the effects on the market estimates of alternative estimates of single-family mortgage originations. As also explained later, the important concept for deriving the goal-qualifying market shares is the relative importance of single-family versus multifamily mortgage originations (the ''mix effect'') rather than the total dollar volume of single-family originations considered in isolation.

[34] The model also requires an estimated refinance rate because purchase and refinance loans have different shares of goals-qualifying units. Over the past year, the MBA has estimated the year 2000 refinance rate to be 20, 30, and 38 percent for the total market (expressed in dollar terms), with 20 percent the latest estimate. The model uses a refinance rate of 40 percent for conforming conventional loans, which is consistent with the MBA's 30 percent estimate, since refinance rates are higher for the number of conventional conforming loans than for the total market expressed in dollar terms. The 40 percent refinance assumption (compared with the recent, lower MBA projections) results in conservative estimates of goals-qualifying units in the market, since the low-mod share of refinance units is lower than the low-mod share of purchase units. Sensitivity analyses for alternative refinance rates are presented in Sections F–H.

[35] The average 1997 loan amount is estimated at $92,844 for owner occupied units using 1997 HMDA metro average loan amounts for purchase and refinance loans, and then weighting by an assumed 40 percent refinance rate. A small adjustment is made to this figure to account for a small number of two-to-four and investor properties (see Section C above). This produces an average loan size of $91,544 for 1997, which is then inflated 3 percent a year for three years to arrive at an estimated $100,000 average loan size for 2000.

[36] Based on the RFS, there is an average of 2.25 housing units per mortgage for 2–4 properties. 1.25 is used here because one (i.e., the owner occupant) of the 2.25 units is allocated to the SF–O category. The RFS is also the source of the 1.35 used in (4c).

MFLOAN$=average loan amount per housing unit in multifamily properties=$30,000.[37]

Substituting these values into (5) yields a projection for MF–UNITS of 1.53 million.

c. Total Units Financed

The total number of dwelling units financed by the conventional conforming mortgage market (TOTAL) can be expressed in three useful ways:

(6a) TOTAL=SF–UNITS+MF–UNITS=9.44 million

(6b) TOTAL=SF–O+SF 2–4+SF–INVESTOR+MF–UNITS

(6c) TOTAL=SF–O+SF–RENTAL+MF–UNITS where SF–RENTAL equals SF–2–4 plus SF–INVESTOR.

2. Dwelling Unit Distributions by Property Type

The next step is to express the number of dwelling units financed for each property type as a percentage of the total number of units financed by conventional conforming mortgage originations.[38]

The projections used above in equations (1)–(6) produce the following distributions of financed units by property type:

	Percent share		Percent share
SF–O	71.1		
SF 2–4	2.0	SF–O	[1] 71.1
SF INVESTOR	10.7	SF–RENTER	12.7
MF–UNITS	16.2	MF–UNITS	16.2
Total	100.0		100.0

[1] Owners of 2–4 properties account for 1.6 percentage points of the 71.1 percent for SF–O.

Sections C and D discussed alternative projections for the volume of the multifamily originations and the investor share of single-family mortgages. The analysis in this appendix will consider three multifamily origination levels—$40 billion, $46 billion, and $52 billion—and three projections about the investor share of single-family mortgages—8 percent, 10 percent, and 12 percent. The middle values ($46 billion and 10 percent) are used in the above calculations and will be considered the ''baseline'' projections throughout the Appendix.

However, HUD recognizes the uncertainty of projecting origination volume in markets such as multifamily; therefore, the analysis in Sections G–H will also consider market assumptions other than the baseline assumptions.

Table D.3 reports the unit-based distributions produced by HUD's market share model for different combinations of these projections. The effects of the different projections can best be seen by examining the owner category which varies by 7 percentage points, from a low of 67.2 percent (multifamily originations of $52 billion coupled with an investor mortgage share of 12 percent) to a high of 74.3 percent (multifamily originations of $40 billion coupled with an investor mortgage share of 8 percent). The owner share under the baseline projections ($46 billion and 10 percent) is 71.1 percent, which is approximately the same as the owner share (71.0 percent) in the baseline projection of HUD's 1995 Rule.

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[37] See Section C for a discussion of average multifamily loan amounts.

[38] The share of the mortgage market accounted for by owner occupants is (SF–O)/TOTAL; the share of the market accounted for by all single-family rental units is SF–RENTAL/TOTAL; and so on.

Table D.3

Distribution of Financed Dwelling Units by Property Type for Different Projections of Multifamily and Single-Family Investor Originations

Investor Share Percentage of Single-Family Mortgage Market	Size of Mulitfamily Market		
	$40 Billion	$46 Billion	$52 Billion
12 Percent			
Single-Family Owner-Occupied	70.3 %	68.6 %	67.2 %
Single-Family Rental	14.9	15.4	15.1
Multifamily	14.8	16.0	17.7
Total	100.0	100.0	100.0
10 Percent			
Single-Family Owner-Occupied	72.3 %	71.1 %	69.6 %
Single-Family Rental	12.8	12.7	12.3
Multifamily	14.8	16.2	18.1
Total	100.0	100.0	100.0
8 Percent			
Single-Family Owner-Occupied	74.3 %	73.1 %	71.6 %
Single-Family Rental	10.7	10.6	10.3
Multifamily	14.9	16.5	18.1
Total	100.0	100.0	100.0

Comparison with the RFS. The Residential Finance Survey is the only mortgage data source that provides unit-based property distributions similar to those reported in Table D.3. Based on RFS data for 1987 to 1991, HUD estimated that, of total dwelling units in properties financed by recently acquired conventional conforming mortgages, 56.5 percent were owner-occupied units, 17.9 percent were single-family rental units, and 25.6 percent were multifamily rental units.[39] Thus, the RFS presents a much lower owner share than does HUD's model. This difference is due mainly to the relatively high level of multifamily originations (relative to single-family originations) during the mid- to late-1980s, which is the period covered by the RFS.[40]

3. Sensitivity of Property Distributions to Changes in Other Model Parameters

The multifamily and single-family rental markets are not the only areas where some degree of uncertainty exists about their magnitudes. HUD examined the sensitivity of the property distributions given in Table D.3 to changes in several other model parameters. Most of these sensitivity analyses will be reported when discussing the market estimates for each of the housing goals. Suffice it to say here that any changes that reduce the owner category such as reducing the overall level of single-family origination activity or raising the per unit loan amounts for single-family mortgages tend to increase the market estimates for each of the housing goals. This occurs because the goal percentages for owner mortgages are lower than those for rental housing.

F. Size of the Conventional Conforming Mortgage Market Serving Low- and Moderate-Income Families

This section estimates the size of the low- and moderate-income market by applying low- and moderate-income percentages to the property shares given in Table D.3. This section essentially accomplishes Steps 2 and 3 of the three-step procedure discussed in Section B.

Technical issues and data adjustments related to the low- and moderate-income percentages for owners and renters are discussed in the first two subsections. Then, estimates of the size of the low- and moderate-income market are presented along with several sensitivity analyses. Based on these analyses, HUD concludes that 50–55 percent is a reasonable estimate of the mortgage market's low- and moderate-income share for the years (2000–2003) which the new goals will be in effect.

This rule proposes that the Low- and Moderate-Income Goal be established at 48 percent of eligible units financed in calendar year 2000, and 50 percent of eligible units financed in each of calendar years 2001–2003.

1. Low- and Moderate-Income Percentage for Single-Family Owner Mortgages

a. HMDA Data

The most important determinant of the low- and moderate-income share of the mortgage market is the income distribution of single-family borrowers. HMDA reports annual income data for families who live in metropolitan areas and purchase a home or refinance their existing mortgage.[41] Table D.4 gives the percentage of mortgages originated for low- and moderate-income families for the years 1992–1998. Data for home purchase and refinance loans are presented separately; the discussion will focus on home purchase loans because they typically account for the majority of all single-family owner mortgages. For each year, a low- and moderate-income percentage is also reported for the conforming market without loans originated by lenders that primarily originate manufactured home loans (discussed below).

[39] Restricting the RFS analysis to 1991 resulted in only minor changes to the market shares.

[40] Between 1987 and 1991, annual multifamily mortgage originations averaged $32 billion, representing 7.2 percent of conventional mortgage originations. In 1997, conventional multifamily originations stood at $40.7 billion but because of the increase in single-family originations since the late 1980s, the multifamily share of total originations had dropped to 4.7 percent.

[41] As noted earlier, HMDA data are expressed in terms of number of loans rather than number of units. In addition, HMDA data do not distinguish between owner-occupied one-unit properties and owner-occupied 2–4 properties. This is not a particular problem for this section's analysis of owner incomes.

Table D.4

Single-Family Owner-Occupied Mortgage Market by Borrower Income

	Home Purchase		Refinance	
	Conforming Market	Market W/O Mfg loans	Conforming Market	Market W/O Mfg loans
Very-Low-Income Share				
1992	8.7 %	7.6 %	4.5 %	4.2 %
1993	10.8	9.6	5.8	5.6
1994	11.9	10.7	11.0	10.2
1995	12.0	10.5	12.3	11.2
1996	12.7	10.8	13.0	12.2
1997	13.0	11.0	14.5	13.9
1998	13.3	11.4	11.3	11.1
Low- and-Moderate Income Share				
1992	34.4 %	33.0 %	25.2 %	24.8 %
1993	38.9	37.4	29.3	29.1
1994	41.8	40.3	39.9	38.9
1995	41.4	39.2	41.1	39.6
1996	42.2	39.4	42.7	41.6
1997	42.5	39.6	45.0	44.1
1998	43.0	40.4	39.7	39.4

Source: HMDA data for metropolitan areas. "Market without manufactured housing loans" excludes loans by lenders that primarily originate manufactured housing loans and loans less than $15,000.

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Table D.4 also reports similar data for very-low-income families (that is, families with incomes less than 60 percent of area median income). As discussed in Section H, very-low-income families are the major component of the special affordable mortgage market.

Two trends in the income data should be mentioned—one related to the market's funding of low-and moderate-income families since the 1995 Rule was written and the other related to the different borrower income distributions for refinance and home purchase mortgages.

Low-Mod Market Share Since 1995. As discussed in the 1995 Rule, the percentage of borrowers with less than area median income increased significantly between 1992 and 1994. Mortgages to low-mod borrowers increased from 34.4 percent of the home purchase market in 1992 to 41.8 percent of that market in 1994. Over the next four years (1995–98), the low-mod share of the home purchase market remained at a high level, averaging about 42 percent, or almost 40 percent if manufactured loans are excluded from the market totals. The share of the market accounted for by very-low-income borrowers followed a similar trend, increasing from 8.7 percent in 1992 to 11.9 percent in 1994 and then remaining at a high level through 1998. As discussed in Appendix A, this jump in low-income lending has been attributed to several factors, including: a favorable economy accompanied by historically low interest rates; the entry into the housing market of more diverse groups including non-traditional households (*e.g.*, singles), immigrants, and minority families seeking homeownership for the first time; and, affordable lending initiatives and outreach efforts on the part of the mortgage industry. Essentially, the affordable lending market is much stronger than it appeared to be when HUD wrote the 1995 Rule. At that time, there had been two years (1993 and 1994) of increasing affordable lending for lower-income borrowers. The four additional years of data for 1995–98 show more clearly the underlying strength of this market. While lending patterns could change with sharp changes in the economy, the fact that there has been six years (1993–98) of strong affordable lending suggests the market has changed in fundamental ways from the mortgage market of the early 1990s.

Refinance Mortgages. HUD's model for determining the size of the low-and moderate-income market assumes that low-mod borrowers will represent a smaller share of refinance mortgages than they do of home purchase mortgages. However, as shown in Table D.4, the income characteristics of borrowers refinancing mortgages seem to depend on the overall level of refinancing in the market. During the refinancing wave of 1992 and 1993, refinancing borrowers had much higher incomes than borrowers purchasing homes. For example, during 1993 low-and moderate-income borrowers accounted for 29.3 percent of refinance mortgages, compared to 38.9 percent of home purchase borrowers. In 1998, another period of high refinance activity, low-and moderate-income borrowers accounted for 39.7 percent of refinance loans, versus 43.0 percent of home purchase loans. But during the years (1995–97) characterized by lower levels of refinancing activity, the low-mod share for refinance mortgages was about the same as that for home purchase mortgages. In 1997, the low-mod share of refinance mortgages (45.0) was even higher than the low-mod share of home loans (42.5 percent).

The projection model assumes that refinancing will be 40 percent of the single-family mortgage market. However given the volatility of refinance rates from year to year, it is important to conduct sensitivity tests using different refinance rates.

b. Manufactured Housing Loans

The mortgage market definition in this appendix includes manufactured housing loans, which have become an important source of affordable housing and which the GSEs have started to purchase. Because the market estimates in HUD's 1995 Rule were adjusted to exclude manufactured housing loans, several tables in this appendix will show how the goals-qualifying shares of the single-family-owner market change depending on the treatment of manufactured housing loans. As explained later, the effect of manufactured housing on HUD's metropolitan area market estimate for each of the three housing goals is a modest one percentage point.

As discussed in Appendix A, the manufactured housing market has been increasing rapidly over the past few years, as sales volume has increased from $4.7 billion in 1991 to $16.3 billion in 1998. The affordability of manufactured homes for lower-income families is demonstrated by their average price of $41,000 in 1997, a fraction of the $176,000 for new homes and $154,000 for existing homes. Many households live in manufactured housing because they simply cannot afford site-built homes, for which the construction costs per square foot are much higher.

Data on the incomes of purchasers of manufactured homes is not readily available, but HMDA data on home loans made by 21 lenders that primarily originate manufactured home loans, discussed below, indicate that: [42]

(i) A very high percentage of these loans—76 percent in 1998—would qualify for the Low- and Moderate-Income Goal,

(ii) A substantial percentage of these loans—42 percent in 1998—would qualify for the Special Affordable Goal, and

(iii) Almost half of these loans—47 percent in 1998—would qualify for the Underserved Areas Goal.

Thus an enhanced presence in this market by the GSEs would benefit many lower-income families. It would also contribute to their presence in underserved rural areas, especially in the South.

To date the GSEs have played a minimal role in the manufactured home loan market, but both enterprises have expressed an interest in expanding their roles.[43] Except in structured transactions, the GSEs do not purchase manufactured housing loans under their seller/servicer guidelines unless they are real estate loans. That is, such homes must have a permanent foundation and the site must be either purchased as part of the transaction or already owned by the borrower. Industry trends toward more homes on private lots and on concrete foundations suggest that the percentage of manufactured homes that would qualify as real estate loans under GSE guidelines has grown in the past few years. There has also been a major shift from single-section homes to multisection homes, which contain two or three units which are joined together on site.

Although manufactured home loans cannot be identified in the HMDA data, HUD staff have identified 21 lenders that primarily originate manufactured home loans and likely account for most of these loans in the HMDA data for metropolitan areas. In Table D.4, the data presented under ''Conforming Market Without Manufactured Home Loans'' excludes loans originated by manufactured housing lenders, as well as loans less than $15,000. The lenders include companies such as Green Tree Financial; Vanderbilt Mortgage; Deutsche Financial Capital; Oakwood Acceptance Corporation; Allied Acceptance Corporation; Belgravia Financial Services; Ford Consumer Finance Company; and the CIT Group.[44]

c. American Housing Survey Data

The American Housing Survey also reports borrower income data similar to that reported in Table D.3.[45] The low- and moderate-income market shares from the AHS are as follows:

1985—27.0%
1987—32.0%
1989—34.0%
1991—36.0%
1993—33.0% (38.7% home purchase and 28.6% refinance)
1995—40.0% (38.5% home purchase and 43.2% refinance)

According to the AHS, 38.5 percent of those families surveyed during 1995 who had recently purchased their homes, and who obtained conventional mortgages below the

[42] Since most HMDA data are for loans in metropolitan areas and a substantial share of manufactured homes are located outside metropolitan areas, HMDA data may not accurately state the goals-qualifying shares for loans on manufactured homes in all areas.

[43] Freddie Mac, the Manufactured Housing Institute and the Low Income Housing Fund have formed an alliance to utilize manufactured housing along with permanent financing and secondary market involvement to bring affordable, attractive housing to underserved, low- and moderate-income urban neighborhoods. *Origination News.* (December 1998), p. 18.

[44] Randall M. Scheessele had developed a list of nine manufactured home lenders that has been used by several researchers in analyses of HMDA data prior to 1997. Scheessele recently developed the expanded list of 21 manufactured home loan lenders in his analysis of 1998 HMDA data. (See Randall M. Scheessele, *1998 HMDA Highlights, op. cit.*) In these appendices, the number of manufactured home loans deducted from the market totals for the years 1993 to 1997 are the same as reported by Scheessele (1999) in his Table D.2b.

[45] See Appendix D of the 1995 Rule for a detailed discussion of the AHS data and improvements that have been made to the survey to better measure borrower incomes and rent affordability.